Agriculture Education: Does it Last a Lifetime?
A Mixed Methods Study Exploring the Long-Term Impact of Agriculture Education on Program Alumni

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Agriculture Education: Does it Last a Lifetime?
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Dedication

This dissertation is dedicated to…

Lori Snelling, my mother, who taught me to never give up on my dreams and was always my biggest supporter.

The wonderful agriculture education teachers in California who work tirelessly day in and day out to provide opportunities for students that make a lasting impact.

Brad Bitter, my high school agriculture teacher, whose dedication to teaching and passion for agriculture inspired me to become an agriculture educator.

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Abstract

Agriculture Education: Does it Last a Lifetime?
A Mixed Methods Study Exploring the Long-Term Impact of Agriculture Education on Program Alumni

Crystal Melanie Thissen Grooms, Ed.D.

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Chairperson: Salvatore Falletta

Funding for agriculture education leadership development programs was challenged by the governor of California for lack of value. Little is known about the long-term impact of agriculture education's leadership development programs on alumni's lives post high school. The purpose of this mixed methods study examines how agriculture education programs impact the lives of alumni long term through the exploration of three research questions:

1. How has participation in agriculture education programs impacted the careers of program alumni?
2. How do the salaries of those who participated in agriculture education compare to those who did not participate in agriculture education?
3. Which agriculture education experiences do participants perceive as most impactful on their lives?

A thorough examination of the pathway to career opportunities and life success through the agriculture education model, stages of youth development and career development theory served to guide this research.

This study consisted of a quantitative portion that was administered via an online survey and a qualitative portion that was collected via online surveys and interviews. Analysis of the quantitative data indicated a positive correlation between participation in agriculture education and increased earnings. Additionally, seven findings emerged from the study: (a) increased earnings potential, (b) leadership skills, (c) communication skills, (d) business fundamentals, (e) employability traits, (f) personality traits, and (g) vocation-specific skills. Finally, the study resulted in recommendations for three populations: (a) departments of education and policymakers, (b) schools and school districts, and (c) parents and students.

Chapter 1: Introduction to the Research

Introduction to the Problem

In the workplace, "there is a growing demand for soft skills such as sociability, teamwork and leadership" (Dhuey & Lipscomb, 2008, p. 173). "Leadership is a complex social process rooted in the values, skills, knowledge, and ways of thinking of both leaders and followers" (Gallos, 2008, p. 1). As such, leadership has become a focal point for both industry and education. Kuhn and Weinberger (2005) found occupying leadership positions in high school fosters lifelong leadership skills. Thus, leadership development is critical for high school students. For example, research has shown holding a leadership position specifically fosters the skill of leadership development, a skill that is widely valued and specifically sought after by universities and employers (Kuhn & Weinberger, 2005; Stone, 2010; Tomsho, 2009). Rouse (2012) specifically found "high school leadership does have a large positive impact on the future educational attainment of the average student" (p. 126).

In the context of secondary education, leadership development is often gained through participation in athletics or student organizations. Many researchers have evaluated the value of participation in these activities, finding participation has a positive effect on the student overall (Cassel & Standifer, 2000; Dobosz & Beaty, 1999; Funk, 2002; Holland & Andre, 1999); however, there is limited research on the value of participation in leadership development through Career Technical Student Organizations (CTSOs) such as the Future Farmers of America (FFA), an organization that is part of agriculture education.

Agriculture education within the public education system was created through the Smith-Hughes Act of 1917. Since that time, it has been implemented as a course of study in high schools in all 50 states, Puerto Rico, and Guam. Agriculture education was founded on a 3-ring model for student success consisting of leadership development through the FFA, academic rigor in the classroom, and experiential learning through Supervised Agriculture Experience (SAE) projects (California FFA, 2015).

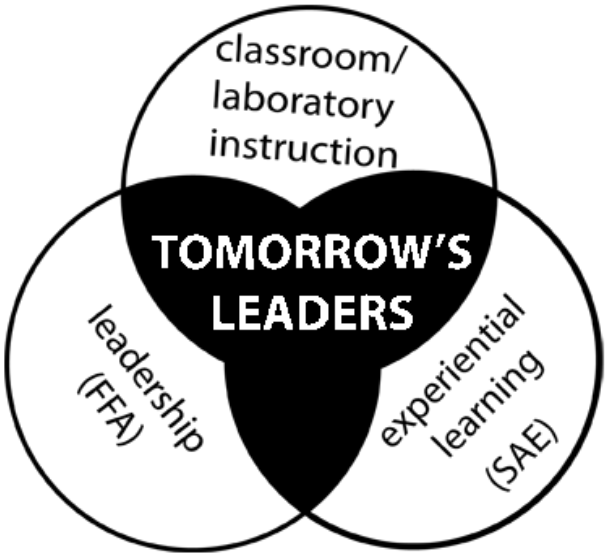

Figure 1. 3-ring model of agriculture education (NAAE, 2015).

Starting in 1983, California supported agriculture education with the Agriculture Incentive Grant (California Department of Education, 2014a). The Agriculture Incentive Grant is a state-funded categorical money source matched by the local school district. The monies have been used by high school agriculture programs to support student

participation in leadership and career development activities as well as to fund supplemental classroom materials.

California has recently implemented the Local Control Funding Formula (LCFF) (California Department of Education, 2014b), which has done away with most categorical monies like the Agriculture Incentive Grant. Through the LCFF, school districts are being provided with lump sum funds and each district has the discretion to determine how the monies are spent on all aspects of education. This change in funding approaches has become a source of great unease in the agriculture education community (Tran, 2013).

In 2014, the State Legislature voted to remove the Agriculture Incentive Grant from LCFF, leaving it as a separate categorical fund to ensure it is spent on quality agriculture education programs. During this time, Governor Edmund Gerald "Jerry" Brown line item vetoed the agriculture incentive grant, which removed it from the state budget, subsequently leading to many protests, senate hearings, and a stringent letter-writing campaign that focused on the importance of funding agriculture education (Nidever, 2014a, 2014b). Eventually, through rigorous campaigning and testimony from agriculture education supporters, the Agriculture Incentive Grant was protected. During this advocacy period, it became apparent that even though there were copious amounts of anecdotal evidence, there was little usable data about the long-term impact of agriculture education's leadership development programs on participants' lives post-high school. It is this lack of data that has informed the need for this current research.

Statement of the Problem to Be Researched

In 2014, funding for agriculture education leadership development programs was challenged by the governor of California; little is known about the impact of agriculture education's leadership development programs on participants' lives post-high school.

Purpose and Significance of the Problem

Purpose

The purpose of this study was to examine how agriculture education programs impact participants' lives over the long term.

Significance

Currently, the data on program impact that are available discuss the effect of the agriculture 3-ring model approach on students immediately after high school. Camp (2001) found "FFA members are more likely to attend four-year colleges than typical students" and they are "more likely to be employed than typical students" (p. 60). This seems to suggest FFA members are more prepared for the future and will be better off long-term. However, data on the subject only extend to immediately following high school. To date, there is no evidence available on the long-term effects of agriculture education.

The California State budget in 2014 set aside $4.1 million for agriculture education (Nidever, 2014a, 2014b), which is distributed among 315 agriculture education programs in California. It supports the approximately 70,000 FFA members in leadership and career development as well as provides classroom resources (e.g., supplemental texts, laboratory supplies, consumable materials, etc.) (California FFA, 2015). This study sought to gather data and information that may be useful to the state legislature when

making future policy and budgetary decisions in regard to funding agriculture education, influencing student and parent decisions, allocating school district funding, and informing corporate donors.

For high school students and families, the data may provide the information necessary to decide whether or not to participate in agriculture education. Looking at the impacts of the program long-term may help them make informed decisions on whether or not to participate in agriculture education leadership events, develop SAE projects, and enroll in agriculture education courses. Likewise, the data may inform individual and company supporters as they consider how much time or money to donate to agriculture education programs.

For high school agriculture education teachers and administrators, the resultant data may help in decision-making processes in regard to funding, course offerings, and time management. The schedule of an agriculture teacher expands far beyond the normal school day. Determining the life impact of agriculture education leadership activities may help teachers decide whether or not to participate in certain events with their students. Likewise, school administrators may be able to use the data to determine the effectiveness of activities and whether or not to approve them. The data may also provide insight when allocating resources such as funding, lab and classroom space, and land for student projects, as well as making master schedule, course offering, and teacher hiring decisions.

Research Questions Focused on Solution Finding

The following research questions sought to examine the impact of agriculture education leadership development activities on students' long-term success:

1. To what extent has participation in agriculture education programs influenced the career choice and progression of program alumni?
2. How do the salaries of those who participated in agriculture education compare to those who did not participate in agriculture education 10-20 years post-graduation?
3. Which agriculture education experiences did program participants perceive as valuable to their careers?

Conceptual Framework

Researcher Stances and Experiential Base

While a high school student, I was actively involved in agriculture education's leadership development activities, and I believe these experiences shaped both my career choice and who I am. The activities instilled a passion for agriculture education, which in turn led to my choice to be an agriculture educator.

When I begin this research study, I had been a high school agriculture teacher and FFA advisor for six years. As such, I have both personally experienced the value of participation as well as witnessed the positive impact of this program on my students and believe wholeheartedly every student should have the opportunity to participate and grow from agriculture education. Because of my personal involvement with the research, I am viewing this research from a post-positive stance. Post-positivists believe "human knowledge is not based on unchallengeable rock-solid foundations – it is conjectural" (Phillips & Burbules, 2000, p. 26). I know that my prior experiences with agriculture education influence my reality. As a researcher, I will have to bracket these biases and

put them aside to truly evaluate the merits of the agriculture education program over the long term.

"Pragmatism views the mixing of quantitative and qualitative data in a single study not only as legitimate, but in some cases necessary" (Gray, 2014, p. 29). This study is a mixed-methods study because combination of both quantitative and qualitative data provided more meaningful results in this instance. The qualitative nature of the interviews provided an opportunity to thoroughly investigate the quantitative data that emerged from the survey. "Pragmatism only works if it generates practical consequences for society" (Gray, 2014, p. 28). Thus, it is the goal of this research to influence educational policy.

Conceptual Framework

Evaluating the agriculture education model is critical to understanding the components of the model and how they individually may contribute to the success of students in the long-term. The agriculture education model consists of three components: rigorous career-specific instruction, experiential learning opportunities, and leadership development. Agriculture education is a secondary education program that stems from high school until the early college years. As such, the stages of youth development are pertinent to understanding the implications of agriculture education and the external factors that contribute to the success of individuals. Youth undergo many transitions from birth to adulthood. These transitions are a time when relationships, self-exploration, extracurricular activities, and other factors impact the decision-making paradigm and influence future career decisions. Career opportunities and choices and the decisions that lead to an individual's career path are important to consider when evaluating the impacts

of agriculture education in terms of career opportunities and life success. Thus, the conceptual framework that guides this research consists of the Agriculture Education Model, the Stages of Youth Development, and Career Development Theory as a pathway to Career Opportunities and Life Success (see Figure 2).

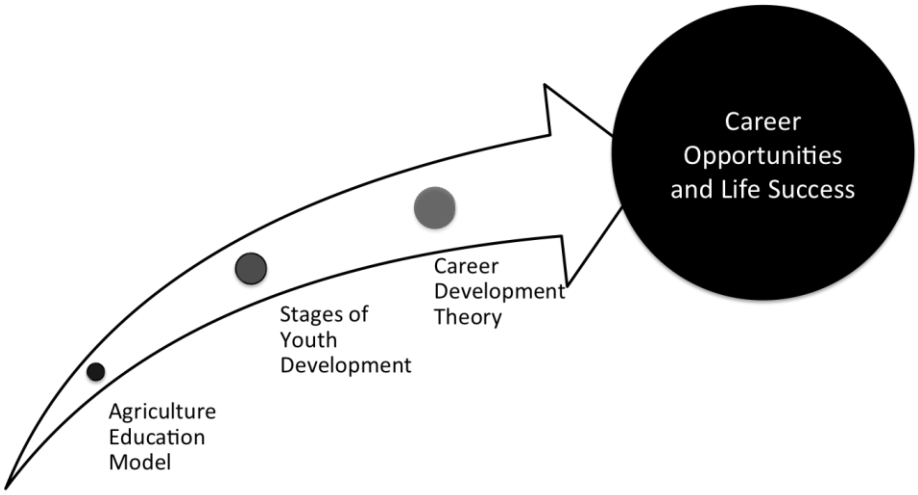

Figure 2. Conceptual framework for components of the long-term impact of agriculture education.

The first step in this pathway is the Agriculture Education Model. Agriculture education lays the groundwork for career opportunities and life success by preparing high schools students for both college and career (Bishop & Mane, 2004; Dare, 2006; Gray, Huang, & Jie, 1993; Hirschy, Bremer, & Castellano, 2011; Meer, 2007; Tillman & Tillman, 2008). Additionally, agriculture education provides high school students with business, critical thinking, and leadership skills that employers look for when hiring.

Therefore, agriculture education lays the groundwork for career opportunities and life success by providing the necessary basic skills (Calgren, 2013; Johanson, 2010; Kuhn & Weinberger, 2005; Lavey & Hine, 2013; Mitra, 2005; Newell & Simon, 1972; Popper, 1999; Price & Cioci, 1993; Raybould & Sheedy, 2005; Rosenberg, Heimler, & Morote, 2012; Van Merrienboer, 2013).

The Stages of Youth Development, particularly adolescent development and emerging adulthood theory are the next step on the path towards career opportunities and life success. During adolescence, a number of factors influence the development of positive life habits and social interactions including familial relationships, peer relationships, and community and school involvement (Allen, Porter, Marsh, McFarland & McElhaney, 2005; Ardelt & Day, 2002; Barber, Eccles, & Stone, 2001; Branje, Van Lisehous, Van Aken, & Haslager, 2004; East & Jacobson, 2001; Eccles, Barber, Stone, & Hunt, 2003; Flanagan, Gallay, Gill, Gallay, & Nti, 2005; Furman & Burhmester, 1992; Glancy, Willits, & Farrell, 1986; Hart & Atkins, 2002; Hart & Fegley, 1995; Johnson, Beebe, Mortimer, & Snyder, 1998; LaFontana & Cillessen, 2002; Mahoney, 2000; Mahoney & Cairns, 1997; Marsh, 1992; Marsh & Kleitman, 2002; Rodkin, Farmer, Pearl, & Van Acker, 2000; Slomkowski, Rende, Conger, Simons, & Conger, 2001; Smetana, Campione-Barr, & Metzger, 2006; Yates & Youniss, 1996; Youniss, McLellan, Su, & Yates, 1999; Youniss, McLellan, & Yates, 1999; Youniss & Yates, 1999). As such, it is important the right influences are extolled upon teenagers. During emerging adulthood, young adults explore who they are and develop the positive skills and habits that lead toward career development (Gottfredson, 1981; Guarnieri, Smorti, & Tani, 2014; Lent,

Brown, & Hackett, 1994; Messersmith, Garrett, Davis-Kean, Malanchuk, & Eccles, 2008; Sussman & Arnett, 2014; Whiston & Keller, 2004).

The final step on the pathway to career opportunities and life success is Career Development Theory. A person's career is the result of a multitude decisions and value assessments. However, in today's world, "many individuals are moving more often and more easily between countries, industries, professions, firms, functions, and organizational levels" (Sullivan, Forret, Mainiero, & Terjesen, 2007, p. 4). Therefore, being able to adapt to an ever-changing career environment is critical to success in today's organizational climate (Barto, Lambert, & Brott, 2015; Eby, Butts, & Lockwood, 2003; Guan et al., 2013; Hirschi, 2009; Koen, Klehe, & Van Vianen, 2012; Maggiori, Johnston, Krings, Massoudi, & Rossier, 2013; Ohme & Zacher, 2015; Savickas, 1997; Sullivan et al., 2007; Zacher, 2014; Zacher & Griffin, 2015; Zacher, Ambiel, & Noronha, 2015). Hence, to achieve career opportunities and life success, a person must be deliberate in their decision-making and adaptable to their situations.

The pathway to career opportunities and life-success is an interlinked journey as opposed to individual steps. The Stages of Youth Development intermixes with the Agriculture Education Model as the participants in agriculture education are teenagers. As such, adolescent development plays an integral role in determining how successful the teachings of agriculture education will be in influencing participants' lives. Likewise, career development depends on the emerging adulthood theory, as the explorations and decisions made during this timeframe directly impact the career decisions. Lastly, the groundwork laid during agriculture education influences career development by providing students with the basic skills necessary to be employable, an introduction to an

industry that can spurn future career exploration and the adaptability skills necessary to navigate the ever-changing work world.

Definition of Terms

Academic Rigor

Instruction with the outcome of creating a "jury-ready" populace who can "analyze an argument, weigh evidence, recognize bias (their own and others), distinguish fact from opinion, and be able to balance the sometimes competing principles of justice and mercy" (Wagner, 2006, p. 29).

Agriculture Education

Agriculture education is the teaching of agriculture subjects. In the context of this study, agriculture education refers to CTE high school programs that teach subjects in agriculture following the 3-ring approach of instruction, SAE, and FFA (California FFA, 2015).

Career

"We define a career as an individual's work-related and other relevant experiences, both inside and outside of organizations, that form a unique pattern over the individual's lifespan" (Sullivan & Baruch, 2009, p. 1543).

Career Adaptability

"Career adaptability is a psychosocial construct that denotes an individual's resources for coping with current and anticipated tasks, transitions, traumas in their occupational roles that, to some degree large or small, alter their social integration" (Savickas & Porfeli, 2012, p. 662).

Career Success

"The accomplishment of desirable work-related outcomes at any point in a person's work experiences over time" (Arthur, Khapova, & Wilderom, 2005, p. 179).

Career Technical Education (CTE)

Career Technical Education is coursework that teaches students career-specific content (Dare, 2006). In the context of this study, CTE is a high school program that gives students job skills through hands-on application.

Co-Curricular

Co-curricular is an organization that is integral to the classroom instruction. These activities complement classroom learning (Co-curricular, 2014).

Emerging Adulthood

Emerging adulthood is the period from the late teens through the 20s. It is "a distinct period demographically, subjectively, and in terms of identity explorations" (Arnett, 2000a, p. 469).

Future Farmers of America

FFA is a co-curricular student organization that focuses on premier leadership, personal growth, and career success through agriculture education (California FFA, 2015).

Supervised Agriculture Experience (SAE)

"The application of the concepts and principles learned in the agricultural education classroom in planned, real-life settings under the supervision of the agriculture teacher" (Talbert, Vaughn, Croom, & Lee, 2007, p. 418)

Assumptions and Limitations

Assumptions

The researcher has a background in agriculture education. As such, it was assumed students who participate in agriculture education do so by their own choice and are not placed there by counselors. Another assumption was students who participate in agriculture education participate in all three circles of the agriculture education model. The amount of participation in each of the circles does vary by program; full SAE implementation is lacking in many programs (Retallick, 2010) and there are 200,000 fewer FFA members than agriculture education students nationwide (Croom, 2008). Thirdly, it was assumed agriculture education instruction is similar across all school sites, thus providing similar outcomes. The researcher also assumed the funding allocated for agriculture education through the Agriculture Incentive Grant is important to ensure the program is implemented successfully. This assumption was based upon yearly program reviews conducted by the California Department of Education that evaluate program implementation. Lastly, this study assumed those who participate in agriculture education do so voluntarily, and all students are given access to fulfilling the three rings of agriculture education: classroom instruction, leadership development through FFA, and experiential learning through SAEs.

Limitations

This study drew on a sample population of alumni from the California FFA Association. California is the largest agriculture state and has more career opportunities in agriculture than other states. California also has a higher cost of living and higher salaries than many other states. In California, FFA is compulsory for agriculture

education students. In most other states, students have the option of being in FFA. Thus, the data provided in the study may not be generalizable to other parts of the country, as not all agriculture education students are enrolled in FFA. Those not enrolled in FFA, for example, may not experience the same leadership development training.

Summary

Anecdotal evidence on the long-term impacts of agriculture education programs provides a promising narrative of the importance of these programs; however, data that support this anecdotal evidence are currently missing. Through a thorough investigation of the agriculture education model, including rigorous career-specific instruction, experiential learning opportunities, and leadership development as well as emerging adulthood theory and the theory of career adaptation, this study strives to fill this gap in the literature. The study results may then be utilized to influence legislative decisions pertaining to the future funding of agriculture education in California. Findings and conclusions may also influence participation decisions by students and families as well as influence the decision-making of agriculture teachers and school administrators.

Chapter 2: Literature Review

Introduction to Chapter 2

As described in Chapter 1, this study focused on examining what, if any, long-term impact agriculture education has on high school students' lives 10-20 years post-graduation. The purpose of this study was to examine how agriculture education programs impact participants' lives over the long term. To do this, a thorough investigation of the research pertaining to the Agriculture Education Model, the Stages of Youth Development, and the Theory of Career Development was critical to understanding the three components that shape the outcome of participants' lives 10-20 years post-high school graduation.

Literature Review

The literature review reflects the overarching research streams indicated in Chapter 1:

1. Agriculture Education Model
2. Stages of Youth Development
3. Theory of Career Development

Agriculture Education Model

To understand how agriculture education impacts program participants, it is crucial to first understand the agriculture education model. Agriculture education is unique in that it takes a 3-ringed approach to student learning. This 3-ring model (see Figure 1) emphasizes the importance of developing the student as a leader through FFA, as a practitioner through classroom instruction and as an experiential learner through

SAE participation. The premise behind this model is students require rigorous career-specific instruction, experiential learning opportunities, and leadership development in order to be successful both in and out of the classroom.

McNally and Harvey (2001) described how this model prepares students for life after high school by developing "leadership skills, encouraging personal and social growth, exploring career opportunities, actively participating in community betterment, developing a respect for work and life-long learning, nurturing team skills and developing citizenship" (p. 115). Such skills are seen by those in the agriculture education profession as critical for development into a successful adult.

Career-specific instruction. Rigorous career-specific instruction is often done through Career Technical Education (CTE) courses. An exploration of CTE courses, the types of students they serve, and the foundation for life they provide is integral to understanding the impact of these programs. Research indicates CTE courses prepare students for both career and college (Bishop & Mane, 2004; Dare, 2006; Gray et al., 1993; Hirschy et al., 2011; Meer, 2007; Tillman & Tillman, 2008). Bishop and Mane (2004) found that one year after graduation, students who spent one-sixth of their high school time in CTE courses earned at least 12% more and seven years after graduation earned 8% more than their counterparts who had not enrolled in CTE. Lewis (2008) found CTE students were more likely to enroll in college classes than non-CTE students of the same socioeconomic and parental education levels. Being prepared for both college and career appears to offer CTE students options after high school graduation that may better prepare them for their future.

Coe (1964) characterized CTE students as at risk, suggesting these students are likely to drop out and often struggle with being engaged in academic classes. While this generalization was made 60 years ago, it is still, in large part, true. Bae, Gray, and Yeager (2007) examined the relationship between enrollment in CTE and low standardized test scores. They found the frequency of lower test scores in CTE students is because of an increased population of lower performing at-risk students. The consensus amongst researchers is CTE students are at risk of dropping out of high school, which in turn gives them a lower earnings potential (Bae et al., 2007; Coe, 1964; Plank, DeLuca, & Estacion, 2008). CTE supports at-risk students by helping them be successful in high school, which in turn prepares them for life after high school.

"There seems to be a common belief among policymakers and the public that CTE students in general do not perform as well as the general non-CTE students in academic courses such as math and reading" (Bae et al., 2007, p. 10). However, research does not support this belief. In fact, CTE helps students become more successful in the core subject areas. Bozick and Dalton (2012) used a sampling of high school students nationwide to determine that CTE studies enhance students' understanding of mathematics. Anderson (2008) discussed how mathematics is easily integrated into agriculture courses and how doing so increased student scores on standardized math exams. Bae et al. (2007) found that even though "CTE students have made substantial progress on math and reading achievement . . . they were still far less likely to be proficient . . . compared to the general students" (p. 11). However, they also discovered "CTE test scores were not meaningfully different than those of their counterparts who did not take CTE" (p. 18).

Impacts on secondary education students. Kelley and Price (2009) analyzed the psychological benefits CTE provides at-risk students. CTE frequently provides students with curriculum in which they can excel, which helps students develop a stronger sense of self-worth. Kelley and Price (2009) suggested this increase in self-worth leads to an increase in effort and extracurricular participation, a sense of belonging, an interest in school, and improved attitudes toward school, educational expectations, and career aspirations. CTE also leads to a decrease in the dropout rate by 6% (Plank et al., 2008). Optimally, "a combination of approximately one CTE course for every two core academic courses is associated with the lowest risk of dropping out after other variables in our model are controlled" (Plank et al., 2008, p. 360). Decreasing the dropout rate has a positive effect on the economy of the nation. "CTE saves $168 billion in costs caused by high school dropouts" (Kotamraju, 2011, p. 31).

CTE courses provide opportunities to special education students that aid in their long-term success (Baer et al., 2003; Harvey, 2002; Rabren, Carpenter, Dunn, & Carney, 2014). Rabren et al. (2014) found CTE impacts special education students more than their general education counterparts. Harvey (2002) examined the wages of special education students after they finished high school. He found "secondary vocational education has labor market advantage for students with disabilities and should be viewed as a legitimate course of study to assist student with disabilities in transitioning to post-school employment outcomes" (Harvey, 2002, p. 118).

Impacts on post-graduation. CTE courses prepare students for both career and college. Strohschein (2012) explored how CTE programs impact student success and academic performance in post-secondary education. He found CTE programs provided

students with both academic and workforce skills. The study participants indicated that CTE positively affected their work in their non-CTE courses and taught them relevant workplace skills that were applicable in their current occupations.

CTE courses teach students work habits that can be applied to industry. "Several researchers have observed that employers described work habits as being more important than academic skills" (Rosenberg et al., 2012, p. 11). As such, it is the attainment of these skills that makes CTE students successful in the workplace. "One-third of all high school graduates immediately go to work, not college" (Gray, 2004, p. 132). CTE courses prepare this subset of the population to be successful. "When compared to non-CTE concentrators who go directly to work, CTE students earn higher wages, experience less unemployment, and are more likely to be employed in higher-wage segments of the economy" (Gray, 2004, p. 132). Meer (2007) found at-risk students who enrolled in CTE were less likely to drop out of high school and earned salaries equal to or more than their general education counterparts. Tillman and Tillman (2008) found 57% of CTE graduates were employed in the industry sectors in which they completed high school coursework. Bishop and Mane (2004) looked at the economic returns to enrollment in CTE. They took the long-term approach and found that students who spent one-sixth of their high school time in CTE courses earned at least 12% more one year after graduation and 8% more seven years after graduation than their counterparts who were not enrolled in CTE. Gray et al. (1993) found that 14 years after graduation, participation in CTE courses continued to have a positive effect on earnings.

CTE courses also have been found to effectively prepare students for post-secondary education. "Because CTE is now viewed by many students as an alternative

route to higher education, the enrollment declines of the 1970s and 980s have been reversed, with CTE students representing one in four of all students" (Gray, 2004, p. 129). Lewis (2008) found CTE students are more likely to enroll in college classes than non-CTE students of the same socioeconomic and parental education levels. Dare (2006) discussed the role of CTE in helping students transition into college, noting enrollment in articulated high school CTE programs benefits students by providing college credit for high school coursework. Hirschy et al. (2011) characterized CTE students as being more persistent than other students, which led to a higher completion rate than that for traditional community college students.

Experiential learning opportunities. "The aim of experiential learning is to develop students' problem-solving and higher-order thinking skills as well as increase collaborative work" (Kelley & Price, 2009, p. 812). Experiential learning in agriculture education is achieved through participation in Supervised Agriculture Experience (SAE) projects. SAE projects are designed to provide students with entrepreneurial, business, critical thinking, and problem solving skills. The benefits from participating in these projects have been found to include skill development in personal finance and record keeping, leadership development, maturation, development of employability skills, and recognition for achievements (Barrick, Hughes, & Baker, 1991; Lewis, Rayfield, & Moore, 2012; Stewart & Birkenholz, 1991). Additionally, a positive correlation between participation in SAE projects and school performance including higher grade point averages for those students who actively participated in experiential learning opportunities has been found (Barrick et al., 1991).

Supervised agriculture experience (SAE) projects. Talbert et al. (2007) defined SAE as "the application of the concepts and principles learned in the agricultural education classroom in planned, real-life settings under the supervision of the agriculture teacher" (p. 418). SAE projects include agribusiness endeavors, agriscience research, agricultural service-learning opportunities, and agricultural placement programs, as well traditional production agriculture with the requirement that students produce a product and earn money (NAAE, 2012). SAE projects are designed as individual activities that are an extension of classroom instruction. These projects allow students to explore entrepreneurial skills while gaining in personal finance skills, maturation, development of employment skills, and recognition for achievements (Stewart & Birkenholz, 1991).

Entrepreneurship experiences. Individuals who possess entrepreneurial skills are more likely to be successful (Bailey 1988; Lewis, 1980; Montanye, 2006). According to Oosterbeek, van Praag, and Ijsselstein (2010), the skills necessary to be a successful entrepreneur are market awareness, creativity, and flexibility. It is hypothesized that entrepreneurial education can enhance this skillset through rigorous curriculum (Kuratko, 2005).

Entrepreneurial education should begin as early as possible in high school (Birdthistle, Hynes, & Fleming, 2007; Cheung & Au, 2010; Paco, Ferreira, Raposo, Rodrigues, & Dinis, 201l). Marques, Ferreira, Gomes, and Rodrigues (2012) suggested adolescence is the optimal period for developing the attitudes and skills necessary to be successful in entrepreneurship. The studies conducted by Peterman and Kennedy (2003) and Lepoutre, Van den Berghe, Tilleuil, and Crijns (2010) also confirmed the importance

of developing these competencies during adolescence by evaluating the effectiveness of entrepreneurship skill development programs that started at different ages.

Business-specific skills. Business curriculum is vital to preparing students for life after high school. According to Graham (1939), business education has a place in all secondary schools for the following three reasons: students need the opportunity to adjust to school life, students need the opportunity to acquire employability skills, and business skills are applicable to students' personal affairs. Research suggests such courses should include units on budgeting, record keeping, and financial statements (Graham, 1939; Railsback & Hite, 2008).

Critical thinking skills. Critical thinking encompasses the entrepreneurial skills of creativity and flexibility (Calgren, 2013). Critical thinking is an important skill for long- term student success; it is also one of the key components employers look for when hiring (Calgren, 2013; Johanson, 2010; Raybould & Sheedy, 2005). "The current and future employment market requires graduates to be equipped with a range of skills" (Raybould & Sheedy, 2005, p. 263) including critical thinking, communication, and problem solving. Calgren (2013) further noted, "all students in high school need to be taught the skills of communication, critical thinking and problem solving immediately" (p. 72). Colleges have recognized the importance of critical thinking and are attempting to implement instruction in this skillset (Johanson, 2010); however, this may not be soon enough. Calgren (2013) argues these skills are "demanded of students after they graduate from high school" (p. 68) and we are doing an ill job of preparing them.

Problem solving skills. "In every day and professional contexts, everyone frequently solves problems" (Van Merrienboer, 2013, p. 153). Problem solving skills are

critical in determining the success of an individual (Newell & Simon, 1972; Popper, 1999; Van Merrienboer, 2013).

> It has been argued that problem solving is one of the most important goals of education. But as a goal it should not be limited to well-structured problem solving, but be extended to real-life problem solving including the joint application of strong problem-solving methods and knowledge-based problem-solving methods. (Van Merrienboer, 2013, p. 159)

In a series of research projects, Jonassen (2000, 2002, 2012) sought to find the best method for teaching problem solving skills. In each study, he found real-life application provides for long-term skill attainment better than other methods. Van Merrienboer (2013) examined the different types of problem solving instruction. He found teaching problem solving skills through real-life application led to the most meaningful attainment of the skillset.

High school student leadership development. Leadership development is critical for preparing students for success in life. Leadership skills are listed as one of the top types of skills necessary for employability (Rosenberg et al., 2012). As such, it is important their leadership potential is nurtured and developed. In agriculture education, leadership skills are taught through participation in the FFA.

There is a positive correlation between participation in leadership activities and academic achievement (Rouse, 2012). Rouse (2012) discussed the importance of teaching high school students leadership skills despite the fact the organizations that teach these skills are usually the first thing to be cut in tight budget situations. Lavey and Hine (2013) stated high school students "are tomorrow's leaders in the workplace, the family, the community, and in government" (p. 41). "Leadership skill is associated with higher earnings" (Kuhn & Weinberger, 2005, p. 408) and "estimates suggest high school

leadership is associated with an increase in college attendance of all demographic group (by roughly 7%)" (Rouse, 2012, p. 113). Hence, it is important their leadership potential is nurtured and developed (Mitra, 2005; Price & Cioci, 1993).

High school students have many opportunities to gain leadership skills through their involvement in clubs and organizations such as Career Technical Student Organizations (CTSOs), Associated Student Bodies, sports, and other clubs (Cassel & Standifer, 2000; Dobosz & Beaty, 1999; Funk, 2002; Holland & Andre, 1999). "CTSOs provide a unique program of career and leadership development, motivation, and recognition for middle or junior high, secondary, postsecondary, adult, and collegiate students who enroll (or who were enrolled) in vocational education programs" (NCC-CTSO, 2015, para. 2). Participation in these organizations provides "students with extra skills and confidence that will help them in their later lives… extra opportunities in organization, facilitation, speaking in public, and working collaboratively with younger students" (Myers, 2005, p. 29).

Leadership development is an important part of agriculture education (Dormody & Seevers, 1994; Wingenbach & Kahler, 1997). Agriculture students are graded on their leadership development through FFA participation and class leadership development activities. Miller (1976) defined FFA leadership development as the "development of life skills necessary to perform leadership functions in real life" (p. 2). This is accomplished through participation in public speaking competitions, parliamentary procedure competitions, attending leadership conferences, and personal leadership development curriculum.

Youth leadership development. "Youth leadership is the involvement of youth in responsible, challenging action that meets genuine needs, with opportunities for planning and decision making" (Kress, 2006, p. 51). Youth leadership development is a newly emerging field. "There continues to be a bifurcation between the leadership on adult leadership theories and the leadership on youth development" (Reever, 2011, p. 98). Mozghan, Parivash, Nadergholi, and Jowkar (2011) examined the proper framework for student leadership development. They found "several factors affect student leadership including: emotional intelligence, self-confidence, student experiences, academic involvement, relationships with faculty and peers and school environment" (p. 1616). Starratt (2007) similarly concluded meaningful experiences are key to the process of discovering leadership potential.

The agriculture education model encompasses rigorous career-specific instruction, experiential learning opportunities, and leadership development to promote student success. Rigorous career-specific instruction through CTE prepares students for both career and college, which prepares them for life after high school. Experiential learning is critical because it provides students with the skills necessary for a successful future in any industry sector (Bailey, 1988; Lewis, 1980; Montanye, 2006). Leadership development in high school is a valuable contributor to both academic and social success that lasts well beyond the high school years (Lavey & Hine, 2013, Mitra, 2005; Price & Cioci, 1993; Rouse, 2012). Thus, the agriculture education model prepares students for lifelong student success.

Stages of Youth Development

When looking at the impacts on humans of any program, it is critical to understand the role human development, the stages of life, and the interactions therein effect the success of individuals. Therefore, to fully understand the impacts of agriculture education, one must understand the stages of human development. A thorough investigation into the stages of human development as proposed by Erikson (1950) is offered, followed by an in-depth look at adolescent development and emerging adulthood theory. Adolescent development is particularly important to this research, as participants were exposed to agriculture education as adolescents, which makes understanding this developmental period instrumental in understanding the potential impacts of agriculture education. Additionally, emerging adulthood theory is an integral piece to understanding this research study, as participants' careers and lives are shaped by their experiences during this period of life.

Erikson's stages of human development. Erikson (1950) describe the eight stages of human development: (a) trust versus mistrust, (b) autonomy versus shame and doubt, (c) initiative versus guilt, (d) industry versus inferiority, (e) identity versus role confusion, (f) intimacy versus isolation, (g) generativity versus stagnation, and (h) integrity versus despair. These stages rely on the assumptions that:

> The human personality in principle develops according to steps predetermined in the growing person's readiness to be driven toward, to be aware of, and to interact with, a widening social radius; and (2) that society in principle, tends to be so constituted as to meet and invite this succession of potentialities for interaction and attempts to safeguard and to encourage the proper rate and the proper sequence of their enfolding. (Erikson, 1950, pp. 269-270)

Keeping Erikson's (1950) assumptions in mind, it is important to evaluate each of the developmental stages, how they shape a person, and the role they play in life and career success. The first six stages discuss the transitions from birth through early adulthood. As such, the six stages (particularly stage five: identity vs. role confusion and stage six: intimacy vs. isolation) are integral to this research project and are discussed in full. The latter two stages—generativity vs. stagrnation and integrity vs. despair—are introduced but not discussed in terms of this research project.

Trust vs. mistrust. The first stage is trust vs. mistrust, which "addresses the individual's infantile experiences with the world other than himself" (Vogel-Scibilia et al., 2009, p. 407). It is during this stage that the basis of the "sense of identity, which will later combine a sense of being all right, of being oneself, and of becoming what other people trust will become" (Erikson, 1950, p. 249) emerges. Therefore, it is during the first stage that an infant learns to trust the world around it and the foundation is laid for who he will become and what he will do with his life.

Autonomy vs. shame and doubt. The second stage involves "the struggle for personal control and separation from others" (Vogel-Scibilia et al., 2009, p. 408). It is during this stage that:

> A sense of rightful dignity and lawful independence on the part of adults around him gives to the child of good will the confident expectation that the kind of autonomy fostered in childhood will not lead to undue doubt or shame in later life (Erikson, 1950, p. 254).

> This stage, therefore, becomes decisive for the ratio of love and hate, cooperation and willfulness, freedom of self-expression and its suppression. From a sense of self-control without loss of self-esteem comes a lasting sense of good will and pride; from a sense of loss of self-control and of foreign overcontrol comes a lasting propensity for doubt and shame. (Erikson, 1950, p. 253)

This stage of development is when a child develops a sense of justice (Erikson, 1950). Therefore, it is critical the right influences are introduced during this stage to prevent a warped sense of the world and justice from developing.

Initiative vs. guilt. The third stage arises between the ages of three and five when children start realizing they can control their world through social interactions. This stage "sets the direction toward the possible and the tangible which permits the dreams of early childhood to be attached to the goals of an active adult life" (Erikson, 1950, p. 258). It is important for the development of aspirations and, ultimately a successful adult life, that children are allowed to explore their world and play according to their wishes. That is how they develop the dreams that shape their future aspirations and careers.

Industry vs. inferiority. During this stage, all children, regardless of culture, receive some sort of systematic instruction (Erikson, 1950). Thus, children learn the fundamentals of technology as they "become ready to handle the utensils, the tools, and the weapons used by the big people" (Erikson, 1950, p. 259). It is critical children be taught during this phase so they have the basic skills necessary to be successful members of society. This is also the phase when the sense of identity begins to emerge (Erikson, 1950). A sense of identity lays the groundwork for the self-confidence of the child throughout life. Therefore, it is important a child be given the tools necessary to succeed without facing too much criticism that will lower the newly emerging confidence critical to success as an adult.

Identity vs. role confusion. This stage takes place during one of the most tumultuous times in a young person's life: adolescence. In this stage, they are "now primarily concerned with what they appear to be in the eyes of others as compared with

what they feel they are" (Erikson, 1950, pp. 260-261). During this stage, one's self-identity begins to be shaped not only by internal forces but by the external forces of their peer groups. This stage is critical in that decisions made during this period can impact the rest of their lives, good or bad. This stage is discussed in depth later in the literature review when the importance of adolescent development and influences on adolescence are evaluated.

Intimacy vs. isolation. This stage is also known as the coupling stage. The adolescent now has a sense of who they are and what they want; they strive to find another with whom to share this sense of self. At this point, a person either searches for companionship or isolates himself or herself; which they choose depends largely on their experiences in the earlier stages and their self-confidence. Strong relationships are indicative of success and help a person weather life's storms (Erikson, 1950). From this stage, a new theory has emerged, the Emerging Adulthood Theory, which is discussed later.

Generativity vs. stagnation. "Generativity is primarily the concern in establishing and guiding the next generation" (Erikson, 1950, pp. 266-267). This stage is critical to developing future generations. Connections to family and community are integral to this stage, as it sets the tone for future generations.

Integrity vs. despair. During this final stage, a person looks back on their life and either views it as meaningful and successful or not. There is not time to redo life and remake choices so this final stage is just that – final.

Adolescent development. Agriculture education takes place during adolescence; therefore, to evaluate the impacts of this program, it is crucial to understand how

adolescents develop, how their personalities form, how external factors influence them, and how this development shapes their futures. "It is commonly said that adolescence begins in biology and ends in culture, because the transition into adolescence is marked by the dramatic biological changes of puberty, while the transition to adulthood is less clearly marked" (Smetana et al., 2006, p. 258). There are many different factors that impact the development of adolescents including familial relationships, peer relationships, and community and school involvement.

Familial relationships. "Family relationships are transformed from more hierarchical relationships at the outset of adolescence to more egalitarian relationships by late adolescence" (Smetana et al., 2006, p. 259). Relationships with parents, siblings, and other family members undergo change during adolescence. This change, as well as the relationships between adolescents and their families, influences the development and decision making of adolescents.

The relationship between parents and adolescents is especially crucial because "parents remain important sources of influence regarding long-term issues like career choices and moral issues and values" (Smetana et al., 2006, p. 267). The relationship between adolescents and parents undergoes a major transformation during adolescence (Buchanan et al., 1990). Disagreements and conflicts over innocuous daily issues are characteristic of the relationships between adolescents and parents, especially at the onset of adolescence (Smentana et al., 2006). While these conflicts can be disconcerting for parents, researchers now agree that moderate conflicts with parents are normal and actually indicate better adjustment to the changes that come with adolescence (Laursen & Collins, 1994). Furthermore, moderate conflicts actually indicate better relationships

between adolescents and parents over the long term (Smetana, Metzger, & Campione-Barr, 2004). The key is moderation; extreme amounts of conflicts are not good for development and indicate a multitude of problems that will continue to impact the adolescent through life including addiction, poor decision-making, and other at-risk behavior (Smentana et al., 2006).

Shifting family dynamics, especially in regard to parents, can wreak havoc on the normal teenage development. Divorce and remarriage disrupt the relationship between adolescents and parents for the first two years, causing more conflict and disruption of the relationship and negative emotions than in two-parent stable households (Smetana et al., 2006). Likewise, economic issues, both chronic and abrupt, cause more conflict and disruption of the relationship and negative emotions (Conger et al., 1992, 1993; Grant et al., 2003; Gutman & Eccles, 1999; McLoyd, 1998). Therefore, it is critical to the development of healthy parental-teen relationships, which in turn leads to better life decisions and eventually better odds at a successful life, that the adolescent period be as stable as possible in terms of family dynamics and economics.

Relationships with siblings are also important to adolescent development and influence adolescent behavior. Research shows that better relationships with siblings leads to better adjustment during adolescence (Smetana et al., 2006; Stocker, Burwell, & Briggs, 2002). This could be due to the fact that conflicts during adolescence often emerge amongst siblings (Furman & Buhrmester, 1985). However, sibling relationships are also sources of friendship and affection (Buhrmester & Furman, 1990; Lempers & Clark-Lempers, 1992; Smetana et al., 2006). Early adolescent relationships with siblings can have a long-term effect on the behavior of an individual, particularly if they are the

younger sibling. When younger siblings have support from older brothers and sisters, they are less likely to act out and make poor choices in regard to relationships, drugs, and school (Branje et al., 2004; Smetana et al., 2006). However, when older siblings engage in poor behaviors, the younger siblings are more likely to as well (Ardelt & Day, 2002; East & Jacobson, 2001; Slomkowski et al., 2001; Smentana et al., 2006). Thus, the behavior of the older siblings greatly impacts the behavior and decision making of the younger siblings, which makes sibling relationships and dynamics crucial to adolescent development.

Families are not limited to just parents and siblings. There are a multitude of other family members, family compositions, and lifestyles that can impact adolescent development. For example, Furman and Buhrmester (1992) found that relationships between adolescents and grandparents become more distant in the traditional Anglo-American family paradigm. However, in other cultures, grandparents play a more prominent role and, in some cases, grandparents take the parental role, in which they are a critical source of emotional support (Taylor & Roberts, 1995).

Peer relationships. During adolescence, teens spend less time with their families and more with their peers (Dubas & Gerris, 2002; Larson, Richards, Moneta, Holmbeck, & Duckett, 1996; Smetana et al., 2006). Traditionally, research has suggested that peer culture has a negative impact on adolescents; however, "research evidence does not support this view" (Smetana et al., 2006). Peers influence adolescents in minor cultural things such as style and appearance and major issues such as social conformity (Smetana et al., 2006).

Friendships. Adolescent friendships are a critical part of development. Social skills are developed through close friendships (Smetana et al., 2006). Friendships in adolescence are often based on similarities in background, values, and behaviors (Hartup, 1996). However, there are often issues with these friendships in teenagers. Younger adolescents rehash issues, focus on negativity, and become dramatic within their friendships easily (Rose, 2002).

Popularity is an important social dynamic in adolescent groups. Popularity, according to research, is associated with prosocial and antisocial behavior (LaFontana & Cillessen, 2002; Rodkin et al., 2000). Adolescent girls who are more popular are more aggressive (they ignore people, spread rumors, and exclude people), which leads to increased popularity, thus, the mean girls dynamic (Farmer, Estell, Bishop, O'Neal, & Cairns, 2003; Rose, Swenson, & Waller, 2004). Additionally, popularity is seen as better social adaptation, but it does increase the likelihood of poor behaviors including alcohol and drug use, poor school performance, and delinquency (Allen et al., 2005). Conversely, unpopularity and the bullying that often comes with it can result in lower self-esteem, depression, and lower grades (Eisenberg, Neumark-Sztainer, & Perry, 2003; Smith, Ananiadou, & Cowie, 2003).

Relationships. Relationships and dating are a huge part of adolescents' social worlds (Collins, 2003). "Research has shown that romantic relationships . . . influence both current functioning and later psychosocial development" (Smetana et al., 2006, p. 270). Romantic interactions become more common than interactions with parents, siblings, and even friends by the 10th grade (Furman & Winkles, 2011). Furman and Burhmester (1992) stated that romantic relationships provide just as much, if not more,

support than relationships with parents during this time. While relationships are healthy and indicate a social maturing, dating too early is usually due to poor self-esteem and often results in sexual experimentation, drug and alcohol use, and low grades (Collins, 2003). Therefore, romantic relationships are important for the development of social maturity, but one should be weary of the downside of engaging in these relationships too early.

School involvement. "Participating in extracurricular activities is associated with both short and long term indicators of positive development including school achievement and educational attainment" (Eccles et al., 2003, p. 867). Participation in school activities including sports, clubs, and other extracurriculars reduces the dropout rate and delinquency rate in high-risk youth (Mahoney, 2000; Mahoney & Cairns, 1997). Participation also increases self-esteem, grade point average, engagement, and aspirations in high school students (Marsh & Kleitman, 2002; Youniss, McLellan, & Yates, 1999). Long-term involvement in extracurricular activities increases educational achievement and better job opportunities as well as better mental health through adolescence and emerging adulthood (Barber et al., 2001; Glancy et al., 1986; Marsh, 1992; Youniss, McLellan, & Yates, 1999). Therefore, involvement in school activities such as the FFA is critical for adolescent development, as it improves educational attainment, decreases delinquency, and provides opportunities that extend towards a successful adult life.

Community involvement. "Civic engagement in adolescence is seen as an important pathway in training youth for future citizenship" (Smetana et al., 2006, p. 272). Such involvement increases the understanding of democracy, teaches compassion, develops moral identity, and increases a sense of social responsibility (Flanagan et al.,

2005; Hart & Atkins, 2002; Hart & Fegley, 1995; Johnson et al., 1998; Yates & Youniss, 1996; Youniss & Yates, 1999). Additionally, adolescents who engage in volunteer work are more mature and philanthropic (Smetana et al., 2006), and these activities enhance social tolerance, investment in the social order, commitment to community involvement, and an optimistic outlook on life (Flanagan et al., 2005). Thus, involvement in the community and volunteering are critical to developing into an adult who is compassionate and civically responsible.

Adolescence is time of great change and potential conflict in life. It is during this time period that the groundwork for adulthood is laid. Relationships with family and peers have a great influence over how a teenager develops, both good and bad. Additionally, participation in school and community activities provide the foundation for success in life by increasing self-worth, reducing drop-out rates, increasing grade point averages, decreasing delinquency rates and encouraging compassion and civic engagement (Barber et al., 2001; Flanagan et al., 2005; Glancy et al., 1986; Hart & Atkins, 2002; Hart & Fegley, 1995; Johnson et al., 1998; Mahoney, 2000; Mahoney & Cairns, 1997; Marsh, 1992; Marsh & Kleitman, 2002; Yates & Youniss, 1996; Youniss, McLellan, Su, & Yates, 1999; Youniss & Yates, 1999).

Emerging adulthood theory.

> The transition from adolescent to adult has long been of interest to students of human development. During the period of adolescence, young people grow to their full adult size, undergo the hormonal and physical changes associated with puberty, and attain reproductive maturity. (Hogan & Astone, 1986, p. 109)

In the past and currently in the developing world, adulthood has immediately followed adolescence. However, in industrialized societies, this is not the case. "The theory of

emerging adulthood was proposed as a framework for recognizing that the transition to adulthood was now long enough that it constituted not merely a transition but a separate piece of the life course" (Arnett, 2007, p. 69). The emerging adulthood stage of life is when people obtain education and training that impacts their careers for the remainder of their life (Arnett, 2000a; Chisholm & Hurrelmann, 1995).

> Emerging adulthood is a time of life when many different directions remain possible, when little about the future has been decided for certain, when the scope of independent exploration of life's possibilities is greater for most people that it will be at any other period of the life course. (Arnett, 2000a, p. 469)

As such, it is an important phase of life that influences the course of a person's life and career that cannot be ignored when looking at the long-term impacts of any youth program.

Characteristics of emerging adulthood. Arnett (2004) proposed five features that make emerging adulthood distinct: the age of identity explorations, the age of instability, the self-focused age, the age of feeling in-between, and the age of possibilities.

Identity explorations. Emerging adulthood is the time when people explore the possibilities of who they are, what they want, and what they believe in. "In the course of exploring possibilities in love and work, emerging adults clarify their identities" (Arnett, 2004, p. 8). They are able to do this because they have left the rigid structure of adolescence where they must abide by parental rules, minor laws, and educational norms and have not yet entered the commitments that signify adulthood: careers, marriage, and parenthood. Thus, they are free "to try out different ways of living and different options for love and work" (Arnett, 2004, p. 8). Specifically in regard to careers, it is during this timeframe a concrete idea about the industry and careers begins to emerge. People "learn

more about their abilities and interests. Just as important, they learn what kinds of work they are not good at or do not want to do" (Arnett, 2004, p. 10).

Instability. This period of exploration is "an exceptionally full and intense period of life but also an exceptionally unstable one" (Arnett, 2004, p. 10). As a person explores the different options available to them, the plan they devise for their life changes. "With each revision in the plan, they learn something about themselves and hopefully take a step toward clarifying the kind of future they want" (Arnett, 2004, p. 11). This continual shifting of plans can be unsettling. "Exploration and instability go hand in hand" (Arnett, 2004, p. 12).

Self-focused. During this period, a person can be focused on himself or herself. "There are few ties that entail daily obligations and commitments to others" (Arnett, 2004, p. 13). Every decision a person faces can be addressed by assessing their views on the situation. "By focusing on themselves, emerging adults develop skills for daily living, gain a better understanding of who they are and what they want from life, and begin to build a foundation for their adult lives" (Arnett, 2004, p. 13).

Feeling in-between. Emerging adulthood is by definition a period in-between adolescence and adulthood. Sixty percent of emerging adults report feeling in-between when asked if they have reached adulthood (Arnett, 2004, p. 14). This is due to the criteria often viewed as a requirement for being an adult: (a) accepting responsibility for oneself, (b) making independent decisions, and (c) becoming financially independent. These criteria are not all or nothing situations but occur gradually as a person transitions from adolescence to adulthood (Arnett, 2004). While the first two criteria are relatively easy to obtain, the third is often more difficult. Financial independence is hard to achieve

with the credit requirements for finding a home, vehicle, and paying tuition. The notion of co-signing for tuition assistance from parents makes financial independence relatively unattainable in the early 20s.

Possibilities. "Emerging adulthood is the age of possibilities, when many different futures remain open, when little about a person's direction in life has been decided for certain" (Arnett, 2004, p. 16). A person has left the requirements of their family and being a child and is emerging as their own, deciding who they want to be and what they want to do. The world is their oyster, so to speak, and it is the age of change where "fulfillment of all their hopes seems possible, because for most people the range of their choices for how to live is greater than it has ever been before and greater than it will ever be again" (Arnett, 2004, p. 17).

Influences during emerging adulthood. "Emerging adults may feel particularly invulnerable to negative life consequences, be self-interested or even hedonistic, and may take an experimental stance toward living" (Sussman & Arnett, 2014, p. 148). Their perception is associated with participation in risky behaviors (Rohrbach, Sussman, Dent, & Sun, 2005; Sussman & Arnett, 2014; Sussman et al., 2011). As such, this time frame is critical in the development (and conversely the lack thereof) of addictions.

Negative. A multitude of research has been done on the development of negative life habits during the period of emerging adulthood and the impacts they impart on a person's future (Arnett, 2005; Bachman et al., 2002). Drug use is at its highest during this stage, which can be due to a desire to find one's identity and coping with the instability of this stage of life (Arnett, 2005). Additionally, drugs are "readily accessible among emerging adults because many of their peers take part in addictive behaviors"

(Sussman & Arnett, 2014, p. 150) and it is often celebrated among emerging adults (Sussman & Arnett, 2014), which leads to positive reinforcement of these behaviors (Argawal et al., 2012; Sussman, 2013; Sussman & Arnett, 2014).

Positive. Conversely, during the stage of emerging adulthood, positive factors can shape the rest of a person's life. Guarnieri et al. (2014) evaluated how positive relationships with parents, romantic partners, and peers impact life satisfaction during emerging adulthood.

> The findings of the study suggest that attachment, which shapes enduring reactions to relationships, others and self, is a strong predictor of life satisfaction. Hence, prevention and intervention programs aimed at enhancing the quality of emerging adults' relationships have the right focus. (Guarnieri et al., 2014, p. 843)

Additionally research suggests that effective connections with people are critical for adjustment to life as an adult (Benson, Leffert, Scales, & Blyth, 1998; Mahatmya & Lohman, 2012; Portes, 2000; Putnam, 1995).

Being employed and actively participating in the local community enhance the ability of emerging adults to develop into responsible, well-adjusted adults. Emerging adults who are "employed are more self-focused and subjectively more stable" (Mecklemann & Peiker as cited in Sussman & Arnett, 2014, p. 152). Being civically involved as an emerging adult develops from participating in community organizational programs as a youth (Mahamtmya & Lohman, 2012). Involvement in activities in high school that promote civic engagement such as the FFA are important.

Impacts on the future. Emerging adults make many decisions about their futures during this period of exploration, including occupational choice. These choices are greatly influenced by experiences during childhood and adolescence as well as during the

stage of emerging adulthood (Gottfredson, 1981; Lent et al., 1994; Messersmith et al., 2008; Whiston & Keller, 2004). Emerging adulthood is the "age during which previous socialization combines with current experiences to shape career choices and long-term goals" (Messersmith et al., 2008, p. 208). Additionally, emerging adults "indicated a considerable amount of optimism" toward their future careers (Arnett, 2000b, p. 278).

Emerging adulthood theory describes the period of time between adolescence and adulthood (Arnett, 2000a, 2000b, 2004, 2005, 2007; Chisholm & Hurrelmann, 1995; Hogan & Astone, 1986; Rohrbach et al., 2005; Sussman & Arnett, 2014; Sussman et al., 2011). The period is a crucial time of development of positive skills and habits that lead toward career development (Gottfredson, 1981; Guarnieri et al., 2014; Lent et al., 1994; Messersmith et al., 2008; Sussman & Arnett, 2014; Whiston & Keller, 2004). It is also a delicate time when addictions are formed (Agrawal et al., 2012; Arnett, 2005; Bachman et al., 2002; Sussman, 2013; Sussman & Arnett, 2014). Thus, it is a critical point of development that influences career choices, opportunities, and livelihoods for the rest of an individual's life.

From birth to emerging adulthood, a multitude of factors can alter the path of development of an individual. Erikson (1950) described the development of a person in eight stages. While all of these stages are important in developing the entire person, for the purposes of this study, adolescent development and emerging adulthood theory are the most relevant. Agriculture education takes place during adolescence and provides opportunities for participation in a co-curricular school activity as well as in community service. Because adults oversee agriculture education, the peer interactions during involvement are generally positive. During adolescence, involvement in school

activities, being surrounded with positive peer interactions, and performing community service are especially influential in the development of positive habits that lead to successful adulthood (Allen et al., 2005; Barber et al., 2001; Eccles et al., 2003; Eisenberg et al., 2003; Glancy et al., 1986; Hart & Atkins, 2002; Hart & Fegley, 1995; Flanagan et al., 2005; Johnson et al., 1998; Marsh, 1992; Marsh & Kleitman, 2002; Smetana et al., 2005; Smith et al., 2003; Yates & Youniss, 1996; Youniss, McLellan, & Yates, 1999; Youniss & Yates, 1999). The goal of this study is to determine the long-term impacts of agriculture education, and success is determined through occupational opportunities and career success. The period of emerging adulthood influences the career opportunities and lays the groundwork for successful adult behaviors (Gottfredson, 1981; Guarnieri et al., 2014; Lent et al., 1994; Messersmith et al., 2008; Sussman & Arnett, 2014; Whiston & Keller, 2004).

Career Development Theory

In terms of this research study, a positive outcome of agriculture education is considered career opportunities and life successes. To fully understand how career opportunities and success impact a person's life, it is important to understand how career development occurs and the influence each stage of development has on participants.

"Career theory provides a foundation for the study of vocational behavior and career development and for examining evidence-based practice" (Sampson et al., 2014, p. 296). "Developing a career is a process, not just a destination" (Kosine & Lewis, 2008, p. 227). The process is unique for each person with varying factors playing a role in the process including socioeconomic status, personality, ethnicity and gender, abilities, and opportunities (Kosine & Lewis, 2008). Due to shifts in the economy from globalization

and unemployment, it is common for people to go through numerous career transitions (Fouad & Guillen, 2006; Rice, 2014; Savickas, 2011). Researchers have attempted to describe the path these transitions take through different models and theories of career development.

"Like any complex field of study, career theories have developed from one another, merged, and branched off in other directions, thereby, weaving an intricate path with the goal of understanding the hows and whys of the career process" (Kosine & Lewis, 2008, p. 227). Many factors, including social learning experiences, personality development, individual needs, values, and abilities, influence career development (Super, 1990). It is the goal of these models and theories to describe how these factors influence the path one's careers take over a lifetime.

Super's evolving theories. "Super's life-space, life-span approach has been the primary interpretation of a developmental approach to career development used . . . since the early 1950s" (Herr, 1997, p. 239). It originally began as the Career Development Theory (Super, 1957) then evolved into the Developmental Self-Concept Theory (Super, 1981) and finally evolved again to the Life-Space, Life-Span Approach to Careers. The evolution of his work can be broken down into five main eras: The Career Development Theory; the career maturity segment; the self-concept segment that resulted in the Developmental Self-Concept Theory; the life-space segment; and eventually the combination of them all that developed into the Life-Space, Life-Span Approach to Careers.

The career development theory. The Career Development Theory begins with the need for career development at different stages in one's career (Super, 1990; Super,

Savickas, & Super, 1996). There are five stages in the career development process: growth, exploration, establishment, maintenance, and disengagement (Super et al., 1996). "It should be noted that Super's theory is not a rigid stage theory in which an individual's age dictates his or her progress from stage to stage . . . movement through the five stages could be a flexible process where people recycle through certain stages during various periods of life" (Kosine & Lewis, 2008, p. 229).

Growth. The growth stage is the first introduction into the world of occupations, (Super, 1990). "Children and adolescents are introduced to a variety of occupations and begin to develop their careers or vocational self- concepts" (Super, 1957, loc. 983). These self-concepts are defined as "one's abilities, personality traits, values, self-esteem, and self-efficacy" (Giannantonio & Hurley-Hanson, 2006, p. 320). "This sense of vocational self-concept is advanced during the growth stage as individuals are exposed to occupations through family, school, community, and the media among other sources" (Kosine & Lewis, 2008, p. 229). The sources influence youth's ideas of autonomy and industry as well as their role models, interests, abilities, and other work skills (Kosine & Lewis, 2008; Patton & McMahon, 2006; Super et al., 1996). Therefore, it is important the youth are introduced to positive notions of careers and occupations so they develop healthy ideas about their potential careers.

Exploration. "During the exploratory stage, individuals engage in experiences that aid in developing their vocational identity by investigating careers, engaging in educational training and apprenticeships and, other work-related experiences" (Kosine & Lewis, 2008, p. 230). "Adolescents and young adults learn more about the world of work and more accurate information is obtained about specific occupations" (Giannantonio &

Hurley-Hanson, 2006, p. 322). They then match their interests and abilities to the occupations they are aware of to develop their self-concept at work (Super, 1957). It is critical people are given the time and experiences necessary to develop a realistic idea about their future careers. Agriculture education does this through promoting career explorations, providing career-specific instruction and experiential learning opportunities and providing students with opportunities for real-world applications through job shadows and internships (Barrick, 1989; Flaxman, Guerrero, & Gretchen, 1997; Hershey, Silverberg, Owens, & Hulsey, 1998; Parr & Trexler, 2010; Talbert & Balschwied, 2004).

Establishment. "The establishment stage is a period in which the individual is focused on establishing a stable work environment and working towards career advancement" (Kosine & Lewis, 2008, p. 231). Promotion and advancement also become a goal during this stage (Patton & McMahon, 2006).

Maintenance. The biggest concern for most at this point is "maintaining their self-concept and their present job status" (Giannantonio & Hurley-Hanson, 2006, p. 323). However, "the world of work is rapidly changing" (Rice, 2014, p. 445), which results in changes in careers during this establishment stage. Whether the career change is within the organization as a new position, within the industry with a new company, or to another industry altogether, this shift requires the individual go through a minicycle of the exploration and establishment stages (Super, 1957).

Disengagement. Disengagement "is the process of disengaging from the world of work, usually through retirement" (Kosine & Lewis, 2008, p. 230). It is at this stage that career maturity is reached (Super, 1990).

The Career Development Theory explains how "individuals construct and negotiate their work lives and specifies predictable tasks and coping behavior that individuals encounter as they develop in their careers" (Savickas, 1997, p. 248). However, Super (1981) evolved this theory into the Developmental Self-Concept Theory by adding an emphasis on the role of self-concepts.

Career maturity segment. Super (1955) proposed a model for adolescent career maturity, which evaluated the readiness of an adolescent to make career decisions based on four dimensions. The four dimensions are career planning, career exploration, knowledge about occupations and careers and knowledge about the principles, and practice of career decision making.

Self-Concept segment. In 1963, the Career Development Theory was revised to become the Development Self-Concept Theory. In this theory, Super "organized and synthesized the diverse types of self-concepts that researchers had investigated into a comprehensive system of self-concept dimensions and metadimensions for vocational behavior" (Savickas, 1997, p. 250).

Life-Space segment. After retirement, "Super became convinced that life in the information age could not be grounded in occupational roles" (Savickas, 1997, p. 251). This segment of Super's work concedes the fact that work is not the central role in a person's life. The theory discusses the relationship between the work role and other roles to create a balanced person (Super, 1984) and the importance of matching occupations to life structures and themes (Savickas, 1993).

Life-Space, life-span approach to careers. All of these pieces of Super's work were eventually joined together to create the Life-Space, Life-Span Approach to Careers

(Super, 1981). He "join[ed] the career maturity and the life-space segments and used the cement of the self-concept segment" (Savickas, 1997, p. 251). His theory is praised for addressing how complex careers are amongst different groups and settings, but it is structured poorly (Brown, 1990). Swanson (1992) criticized the life-space, life-span theory for focusing too much on the exploration stage and initial career choice without giving much regard to establishment and maintenance. However, in regard to the influence and impact of agriculture education, the exploration and initial career choice are critically important.

Theory of career adaptation. Savickas (1997) proposed "that career adaptability replace career maturity as the central construct in the career development theory segment" as a "first step in bridging the segments of life-span, life-space theory" (p. 254).

> The change from career maturity to career adaptability simplifies life-span, life-space theory by using a single construct to parsimoniously explain development in children adolescents and adults. Furthermore, the change tightens the integration between the life-span, life-space and self-concept segments by focusing each on the individual's adaptation to environmental context and emphasizing a single source of motivation. (Savickas, 1997, p. 254)

The change currently makes sense, as there has been a shift in what careers are and how they are shaped. *"*Careers have been traditionally conceptualized as linear trajectories where individuals advance hierarchically within a single organization over the course of their career" (Eby et al., 2003, p. 689). However, in today's world, "many individuals are moving more often and more easily between countries, industries, professions, firms, functions, and organizational levels" (Sullivan et al., 2007, p. 4). The agriculture

industry is no exception. Thus, to achieve and maintain career success in today's world, employees must be adaptable and to retain employees, businesses must be adaptable.

Career adaptability is the ability to change to accept new circumstances in a career by planning, exploring, and making decisions about the future (Barto et al., 2015; Brown, 1990; Savickas, 1997). It has proven to enhance career success, job performance, and well-being (Guan et al., 2013; Hirschi, 2009; Koen et al., 2012; Maggiori et al., 2013; Ohme & Zacher, 2015; Zacher, 2014; Zacher & Griffin, 2015; Zacher et al., 2015) and "aims to help individuals articulate and enact a career story that supports adaptive and flexible responses to developmental tasks, vocational traumas, and occupational transitions" (Savickas et al., 2009, p. 245). "Adaptability corresponds to skills, capacity and resources for adapting behaviors or performance" (Hamtiaux, Houssemand, & Vrignaud, 2013, p. 131). Therefore, it is the development of these skills that is critical for ensuring the success of employees in the ever-changing climate of the modern workplace.

Career Adapt-Abilities Scale (CAAS).

> A collaborative team of psychologists in 18 countries worked together to linguistically explicate and operationally define the construct of career adaptability. As a practical outcome, they sought to construct a career adaptability scale that could be used in difference countries with the results easily comparable. (Porfeli & Savickas, 2012, p. 748)

The form has four subscales that measure each of the four dimensions of career adaptability: concern, control, curiosity, and confidence (Savickas & Porfeli, 2012, p. 663). Increasing one's abilities in these four areas is the goal in career education and

counseling. The CAAS measures responses on a scale of 1 (not strong) to 5 (strongest) in each of the four categories (Duarte et al., 2012, p. 726).

"Concern about the future helps individuals look ahead and prepare for what might come next" (Savickas & Porfeli, 2012, p. 663). Exhibiting concern about the future is indicative of forward planning and a dedication to career success. Concern is measured using the following six statements:

(1) Thinking about what my future will be like,

(2) Realizing that today's choices shape my future,

(3) Preparing for the future,

(4) Becoming aware of the educational and career choices that I must make,

(5) Planning how to achieve my goals, and

(6) Concerned about my career (Duarte et al., 2012, p. 726).

"Control enables individuals to become responsible for shaping themselves and their environments to meet what comes next by using self-discipline, effort, and persistence" (Savickas & Porfeli, 2012, p. 663). Those who exhibit control over their lives are more persistent and more likely to achieve career success. Control is measured using the following six statements:

(1) Keeping upbeat,

(2) Making decisions by myself,

(3) Taking responsibility for my actions,

(4) Sticking up for my beliefs,

(5) Counting on myself, and

(6) Doing what's right for me (Duarte et al., 2012, p. 726).

Curiosity is an important component of career adaptability. People who are curious about their situations and futures are more amenable to change. "Possible selves and alternative scenarios that they might shape are explored when curiosity prompts a person to think about self in various situations and roles" (Savickas & Porfeli, 2012, p. 663). Curiosity is measured using the following six statements:

(1) Exploring my surroundings,

(2) Looking for opportunities to grow as a person,

(3) Investigating options before making a choice,

(4) Observing different ways of doing things,

(5) Probing deeply into questions I have, and

(6) Becoming curious about new opportunities (Duarte et al., 2012, p. 726).

Being confident in oneself is critical for success in any endeavor. Being confident in abilities allows for successful career design and implementation. "These exploration experiences and information-seeking activities produce aspirations and build confidence that the person can actualize choices to implement their life design" (Savickas & Porfeli, 2012, p. 663). Confidence is measured using the following six statements:

(1) Performing tasks efficiently,

(2) Taking care to do thing well,

(3) Learning new skills,

(4) Working up to my ability,

(5) Overcoming obstacles, and

(6) Solving problems (Duarte et al., 2012, p. 726).

Career adaptability and education. "The youth of today are the labor force of tomorrow" (Levin, 2015, p. 136). Thus, it is the role of education to prepare students for joining the workforce with as much skill as possible.

> The traditional view of the role of education in increasing productivity was that it raised the knowledge of the worker for accommodating work tasks and increasing worker precision and individual output. Additional education also enhanced the trainability of workers for more complex work roles and higher positions. But, the more recent views suggest that the greatest gains in worker productivity, both in the short run in improving the allocation of resources and in the long run in accommodating new technologies and forms of organization, result from the adaptability of workers to change. (Levin, 2015, p. 139)

Thus, the ultimate goal of all education, including agriculture education, should be to produce students who are adaptable to change both in and out of the workforce.

School to work transitions and adaptability. "The years after a student leaves school are years of choice and change" (Savickas, 1999, p. 326). "A recent longitudinal study by the US Bureau of Labor Statistics in 2002 reported that on average young people up to the age of 36 changed their jobs 9.6 times since age 16" (Savickas et al., 2009, p. 242). Therefore, adaptability is a critical skill for young people to acquire early on in order to have successful careers under the new career paradigm.

While all stages of career development are important in shaping the entire person, this research focuses on the influences of agriculture education, which occurs during adolescence, and the skills learned within that program to shape the careers of participants. Being able to adapt to an ever-changing career environment is critical to success in today's organizational climate (Barto et al., 2015; Eby et al., 2003; Guan et al., 2013; Hirschi, 2009; Koen et al., 2012; Maggiori et al., 2013; Ohme & Zacher, 2015; Savickas, 1997; Sullivan et al., 2007; Zacher, 2014; Zacher & Griffin, 2015; Zacher et

al., 2015). For youth to be successful during their careers, they must be adaptable in the four areas of career adaptability: concern, control, curiosity, and confidence (Duarte et al., 2012; Porfeli & Savickas, 2012; Savickas & Porfeli, 2012). Therefore, agriculture education programs must address adaptability to promote long-term career success.

Summary

The pathway to career opportunities and life-success is an interlinked journey, as opposed to individual steps. The Stages of Youth Development intermixes with the Agriculture Education Model, as the participants in agriculture education are teenagers. Adolescent development plays an integral role in determining how successful the teachings of agriculture education will be in influencing participants' lives. Likewise, career development depends on the emerging adulthood theory, as the explorations and decisions made during this timeframe directly impact career decisions. Lastly, the groundwork laid during agriculture education influences career development by providing students with the basic skills necessary to be employable, an introduction to an industry that can spurn future career exploration and the adaptability skills necessary to navigate the ever-changing work world.

Chapter 3: RESEARCH METHODOLOGY

Introduction

As described in Chapters 1 and 2, this study focused on examining what, if any, long-term impact agriculture education has on high school students' lives 10-20 years post-graduation. The following research questions sought to examine the long-term impact of agriculture education leadership development activities on students' long-term success:

1. To what extent has participation in agriculture education programs influenced the career choice and progression of program alumni?
2. How do the salaries of those who participated in agriculture education compare to those who did not participate in agriculture education 10-20 years post-graduation?
3. Which agriculture education experiences did program participants perceive as valuable to their careers?

This chapter explains the research design chosen for this study as well as the rationale that led to the choosing of this design. It describes the target populations and provides a detailed description of the methods of the study and data collection. Lastly, an overview of ethical considerations for this study is offered.

Research Design and Rationale

This study employed a concurrent and embedded mixed methods design. Mixed methods were chosen because a "better understanding of the multifaceted character of educational phenomena can be obtained from the use of multiple approaches and ways of

knowing" (Greene, 2007, p. 20). An embedded study was chosen because it provides complementary datasets that work together in analysis of the phenomenon (Greene, 2007, pp. 127-128). The survey used in the study served as the primary data collection tool in this study. "In the embedded design, the supplemental strand is added to enhance the overall design in some way" (Creswell & Clark, 2011, p. 72). In this case, the interviews supplement the survey data by giving a voice to the experiences of agriculture education alumni and allowing the researcher to see the complete picture of agriculture education's impact.

Site and Population

Population Description

"A population is a group of individuals who have the same characteristic" (Creswell, 2011, p. 142). The population of this study was California public school students who attended high schools with an agriculture education program and graduated between 1995 and 2005. This graduation range was chosen because at the time of this study, participants were old enough to be set in their careers and lives, but young enough to remember the specifics of their agriculture education experiences. The contact information was obtained through the California FFA Alumni Association database. It is important to note that this database is limited in that participants opt to be in the alumni group. Participants were asked to forward the survey on to others who had participated in agriculture education, thus snowballing the sample and extending the reach. Additionally, the researcher sought out other program alumni through the use of Linked-In and Facebook groups.

Site Description

A specific site was not selected for this study because a specific school site would have limited the quality of the study and its policy implications. The survey was created and sent throughout the state of California. The researcher gained access to the database of agriculture education alumni compiled by the California FFA Alumni Association. Comparative data relating to income levels, educational attainment, and career opportunities and satisfaction for the population range were acquired via public databases.

Site Access

Site access was not an issue in this study because there was not a specific site. However, the researcher gained access to the database of agriculture education alumni through a professional contact at the California FFA Alumni Association.

Research Methods

Description of Methods

This mixed-methods study consisted of two concurrent research phases: the quantitative survey phase and the qualitative interview phase. The survey phase was designed to answer the following research questions:

1. To what extent has participation in agriculture education programs influenced the career choice and progression of program alumni?
2. How do the salaries of those who participated in agriculture education compare to those who did not participate in agriculture education 10-20 years post-graduation?

The qualitative interview phase was designed to answer the following research question:

3. Which agriculture education experiences did program participants perceive as valuable to their careers?

Interviews. Interviews were chosen because "they provide useful information . . . and permit participants to describe detailed personal information" (Creswell, 2011, p. 218). The researcher wanted to gain insight into the lived experiences of the participants and felt interviews would provide an opportunity for subjects to share details of their agriculture education experiences and provide insight into the different types of agriculture education activities and their perceived value.

Description of interviews. The interviews were held both in person at a neutral location and online via Skype. The interview design was semi-structured. Semi-structured interview design was selected because it provides the researcher with the ability to collect specific information from all participants while still allowing the ability to probe deeper as needed (Merriam, 2002, p. 13), thus allowing the researcher the ability to fully understand the lived experiences of each individual interview participant.

Description of participants. The researcher selected every 17th name from the California FFA list of agriculture education alumni from 1995 to 2005 and contacted them individually and in a random order to determine if they were willing to participate in an interview. This continued until eight participants committed to participating in the interviews. All other participants were sent the survey. This design was chosen over having participants self-select for a follow-up interview to limit response bias and allow the researcher to compare the survey and interview data as independent sources.

Data collection. The researcher contacted qualified participants, informed them of the goals of the study, and invited them to participate via email. Participants were informed of the research questions and their rights to withdraw from the study in advance. Once consent was received, the researcher scheduled the interviews. Interviews were held both in person and via Skype so as to not limit the population by geography. In-person interviews were held in a neutral location. The questions asked are identified in Appendix A. The interviews were recorded and transcribed as outlined in the data analysis section that follows.

Surveys. Surveys were chosen because of their ability to reach a wide audience in an efficient manner (Creswell, 2011). The researcher chose to utilize a survey because it enabled her to reach as many agriculture education participants as efficiently as possible.

Description of survey. The survey (see Appendix B) consisted of both qualitative and quantitative questions. It consisted of a mix of open-ended and closed-response questions that asked participants to evaluate their experiences in agriculture education. Salary and demographic questions were also asked in a format similar to the publicly available data for easy comparison. Participant demographic information was also obtained for the purpose of comparisons across subgroups of population.

Description of participants. The survey was administered through a web-based survey platform to all active agriculture education graduates from 1995 to 2005. The contact information for this survey was gathered through the California FFA alumni database. Snowball sampling was used whereby participants were asked to forward the survey on to others who had participated in agriculture education from these classes.

Data collection. The survey was available for response for a period of one month. The researcher then began the process evaluating the data.

Data Analysis Procedures

Quantitative data analysis. The data resulting from the quantitative portion of the survey were analyzed and compared to the publicly available data. Frequencies, distributions, and percentages were calculated as well as mean scores and standard deviation. Cross-tabulations were calculated by key demographics.

Qualitative data analysis. The interviews were recorded and transcribed. The researcher then examined the interview transcripts and coded them using both in vivo coding and pattern coding. In vivo coding was chosen because it allows the researcher to keep the data in the participants' own words (Saldaña, 2013). Pattern coding was done next to identify similarities in the data and apply meaning to it (Saldaña, 2013). Once the data were coded, they were evaluated for themes. Lastly, the survey data pertaining to which activities in agriculture education were most impactful to participants were coded in the same manner as the interviews.

Stages of Data Collection

Data collection began immediately following IRB and proposal approval. Stage one of data collection consisted of disseminating the surveys to agriculture education graduates. The survey was available for one month. The survey data were evaluated and compared to the publicly available data, which took one week. Stage two of data collection was concurrently conducting interviews. Transcriptions and coding were completed upon completion of each interview. A thorough analysis for themes was conducted upon culmination of the final interview. The researcher then took all the data

compiled and began synthesizing information and drawing conclusions. This final analysis took an additional week. The total length of data collection and analysis was two months and aligned according to Table 1.

Table 1

Proposed Study Timeline

Stage	***Timeframe***
Interviews and Transcriptions	February 15, 2016-March 31, 2016
Survey Open for Responses	February 15, 2016-March 15, 2016
Analysis of Survey Data	March 15, 2016-March 31, 2016
Coding and Analysis of Interview Data	February 15, 2016-April 15, 2016
Synthesis and Analysis of Data	April 15, 2016-April 30, 2016

Ethical Considerations

The researcher took multiple precautions to ensure the rights and privacy of the participants were preserved. Before beginning, the study was reviewed through the IRB process at Drexel University. Each participant was notified of the study's purpose and privacy safeguards prior to enrolling in the study. They were also informed that they could withdraw from the study at any point without consequence.

Anonymity of participants was a priority of the researcher. Every participant was given a pseudonym to protect his or her identity. Additionally, all research materials

including interview recordings, transcripts, and written survey responses were stored in the researcher's home safe and destroyed upon completion of the study.

Chapter 4: Findings, Results, and Interpretations

Introduction

The purpose of this mixed methods study was to examine how agriculture education programs impact participants' lives over the long term. Chapter 4 provides the results of the doctoral study described in Chapters 1, 2, and 3. Specifically, Chapter 4 covers: (a) participant overview, (b) research questions, (c) findings, and (d) results and interpretations.

Participant Overview

The study was broken into two simultaneous components: survey and interview. Data collection occurred over a period of 45 days. The participants for each component are described in detail below.

Interview Participants

From the list of 836 California FFA alumni members, eight meeting the participant criteria were selected. The selection process consisted of going through the alumni roster and randomly contacting every 17th person to determine their eligibility and willingness to participate in an interview. Eight participants were interviewed: 50% male and 50% female. Of the eight interview participants, three worked in agriculture, three in construction, one in education, and one in the medical field. The education level of participants varied greatly: one had a doctoral degree, two had master's degrees, three had bachelor's degrees, and two had high school diplomas.

Survey Participants

The survey was available online for a period of 30 days. Two hundred two participants fully completed the survey with another 218 partially completing the survey, bringing the total number of respondents to 420, of which 308 were usable for the purposes of the study and analyses.

Demographic data. Four main demographics as related to survey participants and that could be compared to the population at large are explained in this section: graduation year, education level, salary, and industry sectors of employment.

Graduation year. Figure 3 shows a breakdown of the years that respondents graduated from high school. Thirty percent of respondents graduated in the 1990s while 70% of respondents graduated in the early 2000s.

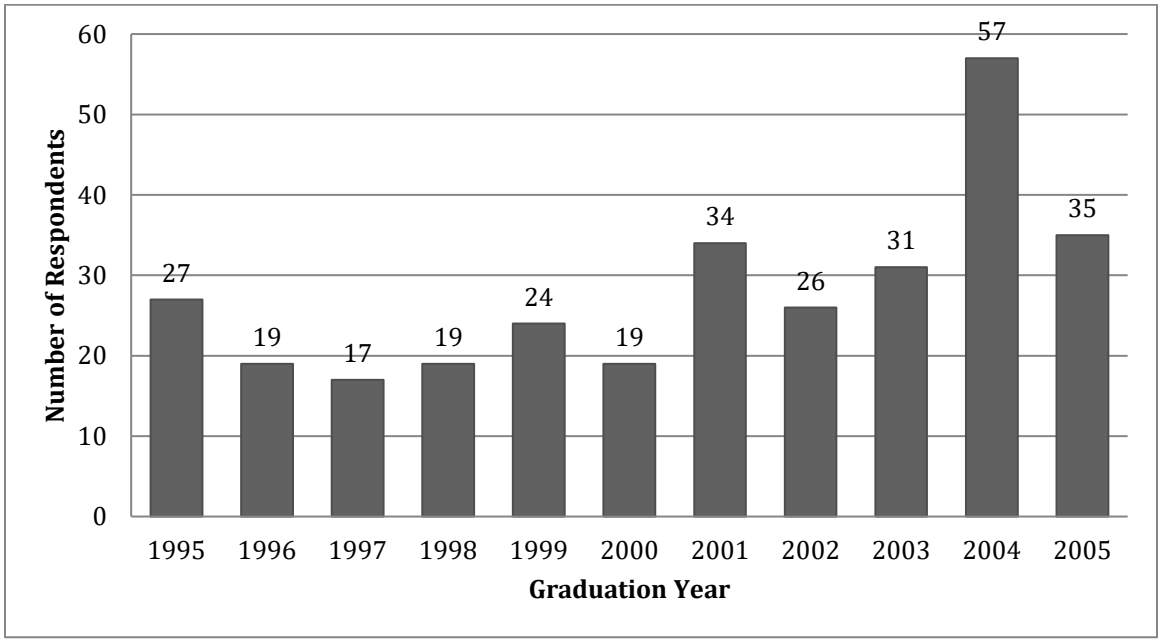

Figure 3. Graduation year distribution of survey participants.

Education level. The education level of survey respondents varied. Ninety percent of survey respondents had attained some level of post-high school education. Fifty-three participants received industry-specific training and certification. Twenty-five attained an associate's degree. Sixty-five percent of respondents achieved a bachelor's degree or higher. Specifically, 101 respondents had bachelor's degrees; 89 had a master's degree; and 10 had a doctoral degree.

Salary distribution. Figure 4 shows the breakdown of salaries of survey respondents. Twenty-seven percent of respondents made less than $50,000 a year. Fifty-six percent of respondents made between $50,000 and $100,000 a year, and 17% of respondents made over $100,000 per year.

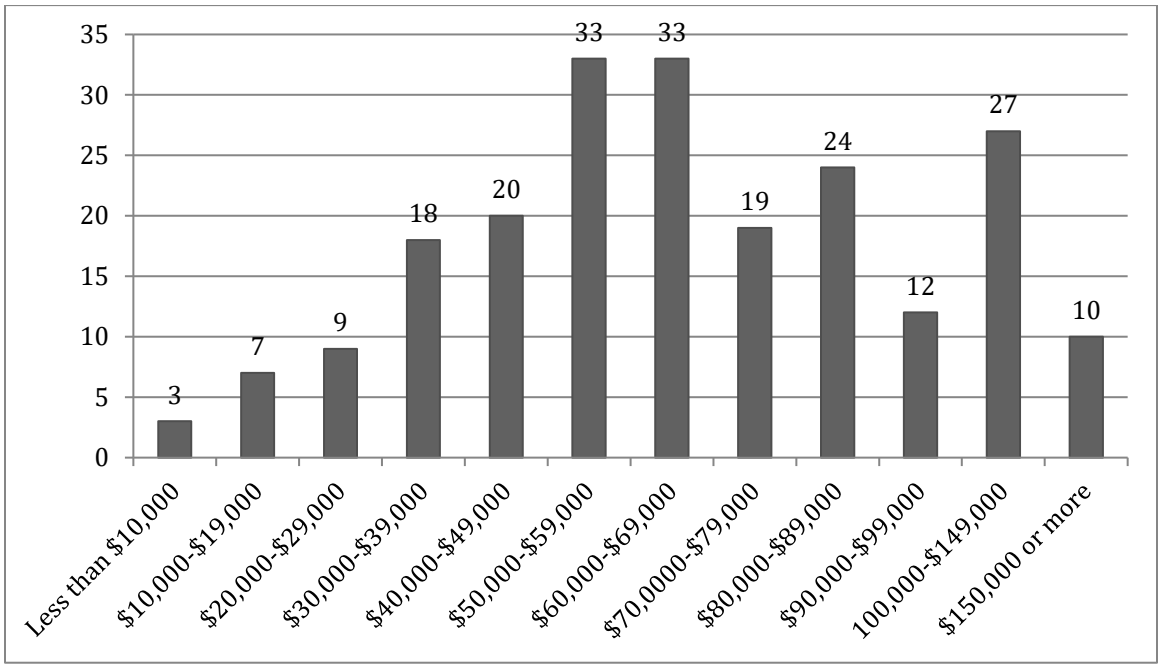

Figure 4. Salary distribution of survey respondents.

Industry sector. Figure 5 shows the breakdown of industry sectors in which respondents were employed at the time of the study. Twenty-eight percent of respondents were employed in the agriculture industry. Seventy-two percent were employed in industries other than agriculture, with 31% being employed in education and 14% in business and finance.

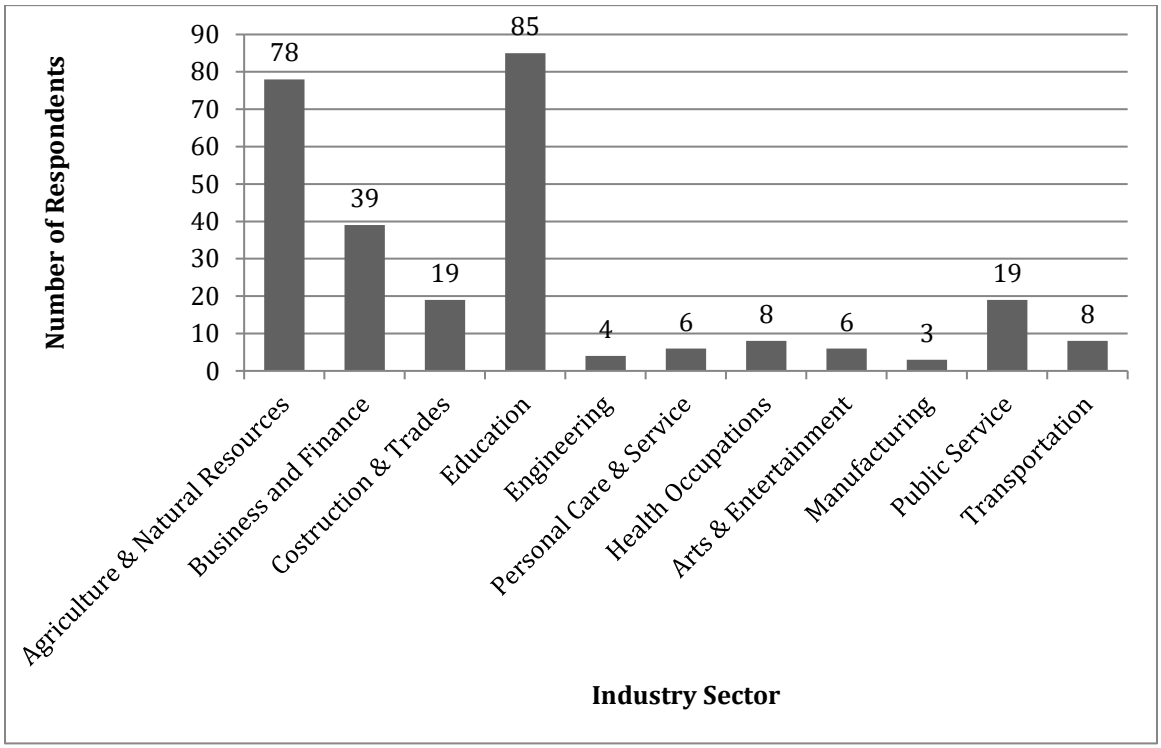

Figure 5. Respondents' employment industry sectors.

Research Questions

The purpose of this study was to examine how agriculture education programs impact participants' lives over the long term. The study pursued this purpose by a thorough investigation into the following three research questions:

1. To what extent has participation in agriculture education programs influenced the career choice and progression of program alumni?
2. How do the salaries of those who participated in agriculture education compare to those who did not participate in agriculture education 10-20 years post-graduation?
3. Which agriculture education experiences did program participants perceive as valuable to their careers?

Findings

The findings presented in this chapter arose from a thorough analysis of the survey data as well as a rigorous transcription of interviews and coding of both the interviews and open-ended items from the survey. Data analysis was done in a holistic, simultaneous manner to accurately reflect the results of both instruments without one unduly impacting the other. The first step to coding was in vivo coding, which allowed the researcher to keep the data in the participants' own words while searching for common themes and meanings. Then pattern coding was utilized to find overarching themes in both the survey and interview data.

This thorough analysis resulted in the seven themes that show the influence of agriculture education on program alumni, as reflected in Figure 6. The seven themes or findings are: (a) increased earnings potential, (b) leadership skills, (c) communication skills, (d) business fundamentals, (e) employability traits, (f) personality traits, and (g) vocation-specific skills.

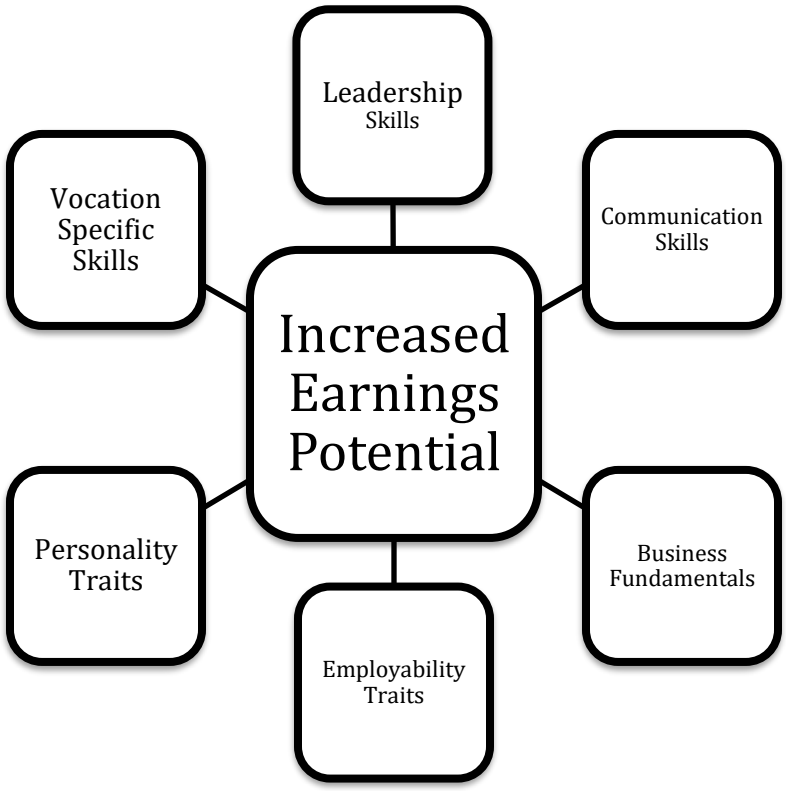

Figure 6. Themes.

Summary of Interview Data

Eight interviews were conducted with agriculture education program alumni. The interviews were then transcribed and coded using in vivo coding. Four major themes emerged from the interview process: (a) life skills, (b) business skills, (c) vocation skills, and (d) relationships.

Life skills. Seven out of eight participants spoke about the life skills they learned through their participation in agriculture education. They credited the program with teaching them how to talk to people, be flexible, be empathetic, and manage their time and commitments. Specifically, they said the following:

- A: "How to speak and be knowledgeable on a topic prepared me to be an adult."

- B: “Learning how to relate to people and strike up a conversation anywhere and with anyone.”
- C: “Learning to roll with the punches was the most useful thing I got out of my ag classes . . . Sometimes animals get sick and you have to drop everything to treat them . . . same goes for babies. You just have to deal with what life throws at you.
- D: “I think the most important thing I got out of FFA was learning how to be a leader, you know leadership skills like how to run a team, organize an event and be a good leader and role model.”
- E: “I was a typical macho teenage boy and I remember one of the girls crying when she sold her animal at the fair. I made fun of her for being a baby. That’s when my ag teacher sat me down and had a long talk about the value of empathy.”
- F: “Time management was a huge emphasis of my ag teacher. We had a ton on our plate with teams and classwork and animals . . . learning how to juggle it all.”
- G: “Interpersonal skills. Talking to people, shaking a hand, maintaining eye contact. Those are the most valuable things I learning in my ag program.”

Business skills. Five out of eight participants said they learned business skills through their participation in agriculture education. Participation in the Supervised Agriculture Experience projects taught participants how to manage a budget, keep records, become entrepreneurs, and how to market. Specifically, they said the following:

- A: “Managing a budget, filling out balance sheets, keeping records . . . all those skills have been super useful when managing jobs.”

- C: “Being able to sell our product has been super useful to me. With my SAE project I sold produce. It was difficult at first to approach people and make the sell. Now I am so confident doing that and it shows in my career.”
- D: “Learning how to fill out those financial statements, income summaries, accounts payable, journal entries . . . really that whole record book. I hated it at the time but being able to track those simple things has really come in handy.”
- G: “Marketing is a huge deal for me, running my own company. I competed on the marketing plan team where we had to develop a business plan and market our product. I use skills from that competition nearly every day.”
- H: “How to keep track of what it costs to make something and what I sell it for . . . keeping track of the money.”

Vocational skills. All eight participants learned vocation-specific skills, which were used in their occupations across the different industry sectors of participants. Those involved in agriculture valued the nomenclature and technical skills learned in their agriculture courses. Those in construction valued the skills learned in their shop classes, such as plan reading and welding. Participants in all sectors valued presentation skills. Specifically, they said the following:

- A: “In my job I spend a lot of time looking at plans and I really go the foundation for reading plans from my shop class in high school.”
- B: “In my ag classes we did a lot of hands on learning and discovery. I try to model that in my teaching and working with students. I don’t remember many of

the lectures but when we actually got to discover something ourselves . . . man I remember those lessons."

- C: "I work in ag service. The vocabulary learned in my ag classes lends me credibility when working with clients . . . It makes it seem like I know what I am talking about when I can use industry specific terms."
- D: "Those soft skills like being on time, being responsible, personal accountability. Those were the most important things I learning in my ag class."
- E: "I learned how to give shots in my animal science class. While I hate giving shots now, it sparked my interest in medicine."
- F: "Animal husbandry skills learned in vet science have been really useful for me. I run a small herd of cattle and refer back to the base knowledge from my high school ag classes regularly."
- G: "How to present in front of a group is the most valuable thing I learned in ag. I use those skills all the time."
- H: "Welding was definitely the best class I took. I work as a welder so I use those skills every day."

Relationships. Six participants spoke about the important relationships gained through agriculture education. Agriculture teachers were very influential in several of the participants' lives and were touted as mentors and life changers. Others spoke of the lifelong friendships and relationships that stemmed from their experiences. Specifically, they said the following:

- A: “Those bonds from competing on CDE teams have lasted a lifetime. We travelled together, we competed together, we became a family . . . Those guys, my livestock judging team, are my brothers.”
- B: “My ag teacher was one of the biggest influences in my life. She ignited my passion for education and she is still a mentor to me.”
- C: “Some of my very best friends are from FFA. Travelling for competitions we got really close and we got to meet people from all over. It’s amazing how as I travel for my job I meet people from other parts of the state that I once competed against or went to a leadership conference one.”
- D: “I met my husband at National Convention.”
- F: “Growing up I didn’t have a father. My ag teacher filled that role in my life. He believed in me. He told me I was going to college and helped me get the scholarships to make it happen. He was the single most influential person in my life.”
- H: “Shop class was my favorite class in high school. All my friends were in it. Our teacher put up with a lot and turned us trouble-makers into good students, well at least in one class.”

Summary of Agriculture Education Impact Survey

Three hundred and eight respondents completed enough of the survey to make it useable. They were asked questions to frame their involvement in agriculture education. Respondents were then asked to indicate whether they agreed or disagreed with several statements regarding agriculture education on a Likert-type scale. Lastly, survey

respondents were asked a series of open-ended questions that evaluated how agriculture education as a whole, as well as the individual components, impacted their careers.

Involvement in agriculture education. The involvement in agriculture education and the distribution of survey respondents was evaluated using three criteria: the number of years enrolled, the highest FFA degree obtained, and the region in which the respondents' FFA chapter was located.

Enrollment in agriculture education. A vast majority of respondents, 81%, were enrolled all four years of high school. Fifteen percent of participants did not complete four years of agriculture education, 10% completed three years, 4% completed two years, and 2% completed only one year. Agriculture education enrollment can be extended to a fifth post-high school year for students who are actively involved and wish to obtain higher accolades in the FFA organization including the American FFA degree, State FFA office, and proficiency awards; 3% of respondents self-reported that they participated a fifth year. However, given the number of American FFA degree recipients, which requires a fifth year of membership, 38% actually completed a fifth year.

Degree obtainment. FFA Degree obtainment depends on the members' participation in a quality SAE project. Degrees are given out in order starting with the Greenhand Degree, followed by the Chapter Farmer and State Degrees and culminating with the American FFA Degree. The requirements to earn the degrees get increasingly more difficult and the percentage of members achieving the degrees decreases at each level. The Greenhand and Chapter Farmer degrees are given out by the local FFA chapter. The State FFA Degree is given out by the California FFA Association. The

American FFA Degree is given out by the National FFA Organization and cannot be applied for until the year after a student graduates high school. Figure 7 shows the highest degree earned by survey respondents. Seventy-seven percent of respondents earned degrees above the chapter level.

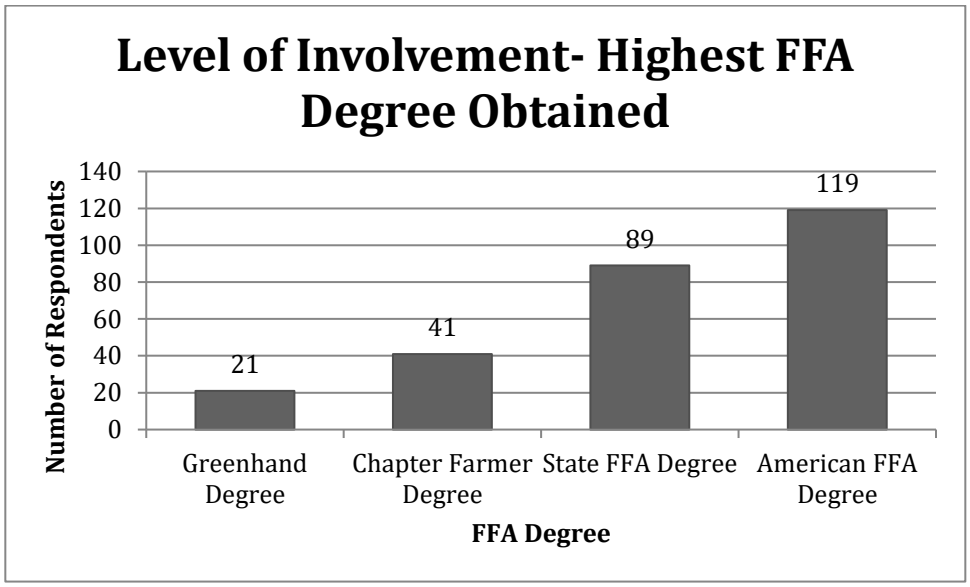

Figure 7. FFA degree obtainment.

Region distribution. California FFA is divided into six regions. Figure 8 shows the disbursement of survey respondents among these regions. It is important to note that the San Joaquin Region and Central Region are the largest regions with the most FFA chapters and are represented with the most respondents.

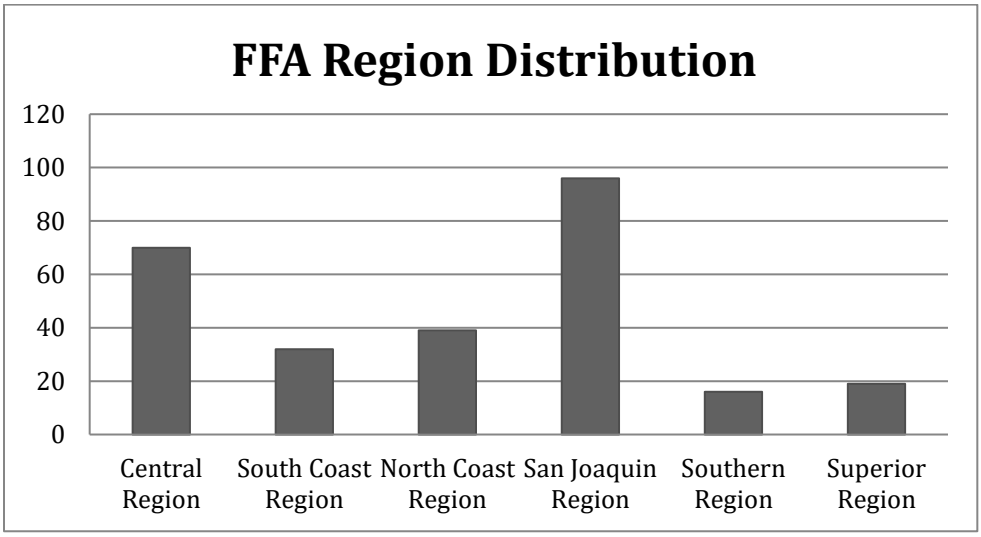

Figure 8. FFA region distribution.

Likert-type scale responses. Respondents were presented with seven statements regarding agriculture education and asked to indicate the extent to which they agreed or disagreed with each of the statements on a five-point Likert-type scale. Table 2 shows the distribution of responses to the seven statements asked along with the Likert-type scale.

Table 2

Likert Scale Responses

	Strongly Disagree 1		**2**		**Neutral 3**		**4**		**Strongly Agree 5**		**Total Responses**	**Weighted Mean**
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**		
My participation in agriculture education was overall positive.	8	3%	1	0%	4	1%	17	6%	242	89%	272	4.78
Participation in agriculture education influenced my career.	18	7%	6	2%	36	13%	37	14%	175	64%	272	4.27
The skills learned in my SAE/SOEP project are valuable to my career.	11	4%	9	3%	38	14%	51	19%	161	60%	270	4.27
The skills learned by participation in leadership development events are valuable in my career.	9	3%	3	1%	10	4%	31	11%	217	80%	270	4.64
The curriculum learned in agriculture education courses was relevant to preparing me for my career.	10	4%	12	4%	45	17%	57	21%	147	54%	271	4.18
Participation in agriculture education provided me with more opportunities for my career.	11	4%	8	3%	30	11%	57	21%	165	61%	271	4.32
Agriculture education should be available to all students.	9	3%	1	0%	3	1%	13	5%	245	90%	271	4.79

Table 2 also shows the weighted mean across survey respondents for each item on the survey. All seven statements were ranked at four (agree) or higher, which indicates

that participation in agriculture education was a positive experience (4.78) and impacted the careers of participants (4.27). Further analysis of the data indicates that participation in agriculture education's leadership development program was perceived as the most valuable component with a weighted average of 4.64, followed by SAE programs at 4.27 and course curriculum at 4.18.

Open-response items. Respondents were asked to respond to five open-response questions relating to their agriculture education experiences. The first question asked respondents what skills learned in agriculture education were the most valuable to their current occupation. Thirty-four percent of participants stated that the leadership skills gained in agriculture education were valuable to their careers. Thirty-one percent of respondents discussed the importance of public speaking skills. Sixteen percent said the communication skills they learned were invaluable, and 11% stated that teamwork skills proved beneficial to their current occupations.

The second question asked participants what their SAE project was and what skills they learned through participation in an SAE project. Most participants, 82%, raised livestock for their SAE projects from which they learned hard work, responsibility, accountability, production skills, and business skills.

The next question asked participants in what leadership activities they participated and what skills they gained from participation in these activities. Thirty-one percent of participants gained public speaking skills, while 20% gained teamwork skills.

The next question asked participants what agriculture courses they took and which were applicable to their current careers. Ninety-seven percent of participants took at least one agriscience course, and 100% of participants who work in the agriculture

industry found their coursework to be relevant to their current careers. However, only 34% of those employed outside of agriculture found the coursework to be relevant to their careers, with 18% referencing the business skills they learned in their agribusiness class as being valuable to their careers.

The final question asked respondents what they wished their agriculture education experience had provided. Eleven percent would have liked more hands-on industry experience, and 10% would have liked more technical skills. Other responses were incredibly varied with little consistency amongst the participants.

Finding One: Increased Earnings Potential

Participation in agriculture education increases the earnings potential of program alumni. The self-reported salaries of survey respondents were compared to the mean and median salaries reported by the Bureau of Labor Statistics for California. The Bureau of Labor Statistics used exact salaries, while the survey used salary range. Given this discrepancy in data reporting methods, the conservative approach was taken and the lowest value in the range was used to calculate the mean and median salary of agriculture program completers. Table 3 shows the breakdown of these figures by industry sector.

Table 3

Median Salary Comparisons

	Survey Responses		CA Averages	Comparison
	N	Median	Median	Median
All Industries	**202**	**$60,000.00**	**$53,740.00**	**$6,260.00**
Agriculture & Natural Resources	41	$70,000.00	$21,760.00	$48,240.00
Business & Finance	36	$65,000.00	$65,710.00	$(710.00)
Construction & Trades	3	$90,000.00	$42,280.00	$47,720.00
Education	77	$60,000.00	$47,220.00	$12,780.00
Engineering & Architecture	3	$80,000.00	$76,870.00	$3,130.00
Personal Care & Services	3	$30,000.00	$21,850.00	$8,150.00
Health Occupations	7	$100,000.00	$62,610.00	$37,390.00
Arts & Entertainment	5	$20,000.00	$46,160.00	$(26,160.00)
Manufacturing	3	$60,000.00	$32,250.00	$27,750.00
Public Service	8	$55,000.00	$37,730.00	$17,270.00
Transportation	7	$60,000.00	$30,090.00	$29,910.00

The overall median of salaries of survey participants is $6,260.00 higher than that of the general population of California. In every industry sector except Business and Finance and Arts and Entertainment, the medians of survey respondents is higher than that reported by the Bureau of Labor Statistics for California. The greatest growth in salary is in the Agriculture and Natural Resources industry sector, for which the median is $48,240.00 higher. The median salaries of survey participants was compared to those reported by the Bureau of Labor Statistics for California based on education level. Participants had higher median salaries across all education levels. Table 4 shows the breakdown of those results.

Table 4

Comparison of Salaries by Education Level

	Survey Responses		CA
	N	Median	Median
All Education Levels	**202**	**$60,000.00**	**$44,720.00**
High School Diploma/GED	17	$50,000.00	$35,256.00
Associates Degree	14	$50,000.00	$41,496.00
Industry Training/Certificate Program	12	$60,000.00	$38,376.00
Bachelors Degree	80	$60,000.00	$59,124.00
Masters Degree	66	$60,000.00	$69,732.00
Doctoral Degree	8	$100,000.00	$84,396.00

Finding Two: Leadership Skills

Ninety-four percent of survey respondents and 88% of interview participants valued the leadership skills they learned through participation in agriculture education. Interview participant D said, “I think the most important thing I got out of FFA was learning how to be a leader, you know leadership skills like how to run a team, organize an event and be a good leader and role model. ” Survey participants echoed this sentiment by repeatedly answering the question “What skills have you learned in agriculture education have been most valuable in your career with the response leadership skills?” This was expanded upon to include the skills of delegation, long-term planning, decision-making and collaboration. Survey respondent 43 elaborated on this sentiment by stating, “Leadership was hands down the most useful thing I got out of ag. Learning to set goals and achieve them, work with others and be responsible really made me a better person and a better boss.”

Finding Three: Communication Skills

Ninety-two percent of survey respondents and 75% of interview participants valued the communication skills they learned through agriculture education. Survey respondent 124 said, "My experience in the multitude of judging teams helped improve my public speaking skills, and giving reasons helped improve my ability to justify the reasoning behind my decisions, a skill I use on a daily basis." Communication was broken into two subcategories: public speaking and conversational skills. Participants valued both, but the ability to speak in front of crowds was highly regarded by most.

Finding Four: Business Fundamentals

Forty-four percent of survey respondents and 63% of interview participants cited the important business fundamentals they learned through agriculture education as being valuable for their careers. The SAE projects and the accounting skills from the record books was a common theme with survey respondents. Interview participant D agreed and stated:

> Learning how to fill out those financial statements, income summaries, accounts payable, journal entries . . . really that whole record book. I hated it at the time but being able to track those simple things has really come in handy.

Other participants, like interview participant G, talked about the marketing skills they learned through competitions: "Marketing is a huge deal for me, running my own company, I competed on the marketing plan team where we had to develop a business plan and market our product. I use skills from that competition every day."

Finding Five: Employability Traits

Forty-three percent of survey respondents and 100% of interview participants discussed the employability traits they gained through participation in agriculture

education. Typical "soft skills" like work ethic, time management, organization, and responsibility were repeatedly spoken about for their value in participants' lives. Survey respondent 182 described how agriculture education shaped his future:

> I was a punk kid. I had no respect for anyone. I was always late, ditched classes, didn't care about anything. Then I took an ag mechanics class and my teacher took an interest in me. He let me know that I had potential and taught me that if I work hard I can make something out of myself. It wasn't over night. He put a lot of time and effort into me but he definitely taught me the value of hard work and I am thankful for that every day.

Finding Six: Personality Traits

Thirty-eight percent of survey respondents and 88% of interview participants gained valuable personality traits through their participation in agriculture education. Interview participant C talked about the flexibility he gained through agriculture education:

> Learning to roll with the punches was the most useful thing I got out of my ag classes . . . Sometimes animals get sick and you have to drop everything to treat them . . . same goes for babies. You just have to deal with what life throws at you.

Many others talked about the confidence they gained through participation in competitions and public speaking. Another common personality trait attributed to agriculture education was perseverance. Survey participant 27 said:

> I learned not to give up. I wanted to be an officer so bad but lost the first two times I ran for chapter office. My ag teacher encouraged me to run for sectional officer, even though I'd never made it to chapter office. Somehow I won. That experience taught me that no matter how many times life knocks you down, you just get back up and keep trying. It'll eventually work out if you want it bad enough and keeping working at it.

Finding Seven: Vocation-Specific Skills

Forty-one percent of survey respondents and 100% of interview participants discussed the value of vocation-specific skills they learned in agriculture education.

From nomenclature to animal husbandry, to shop skills and plant identification, participants valued the specific topics covered in their agriculture education classes. Interview participant C talked about how the curriculum in her agriculture program increased her credibility: “I work in ag service. The vocabulary learned in my ag classes lends me credibility when working with clients . . . It makes it seem like I know what I am talking about when I can use industry specific terms.” Survey respondent 8 agreed: “the general agricultural knowledge and terminology I learned served as the foundation for my entry into the agricultural real estate appraisal division of my office.”

Summary

In summary, a thorough examination of the survey data and interviews resulted in seven findings: (a) increased earnings potential, (b) leadership skills, (c) communication skills, (d) business fundamentals, (e) employability traits, (f) personality traits, and (g) vocation-specific skills.

Results and Interpretations

The final section of Chapter 4 offers the results and interpretations from this mixed methods study, which sought to explore the impact agriculture education had on program alumni. The following three results that emerged from this study are discussed next:

1. Agriculture education increases the earnings potential of most program alumni.
2. Participation in agriculture education positively influences the careers of most program alumni regardless of the industry sectors they work in.
3. Different program alumni value different aspects of the three circles of agriculture education: classroom, SAE, and FFA.

Result One. Agriculture education increases the earnings potential of most program alumni.

The survey data show that participation in agriculture education led to an increase in salary. Specifically, participation in agriculture education leads to a 15% increase of wages of program alumni, which aligns with Bishop and Mane's (2004) finding that CTE completion resulted in a 12% increase of wages.

Result Two. Participation in agriculture education positively influences the careers of most program alumni regardless of the industry sectors they work in.

Seventy-eight percent of survey respondents believe participation in agriculture education influenced their careers. This assertion was supported with the free-response survey answers and the interview responses that explained how the various skills learned in agriculture education continue to impact program alumni. From leadership to communication, to vocation and life skills, agriculture education impacts program alumni's career progression through the development of skills during the critical period adolescent development. This skills attainment and lasting impact are supported by the research of Barber et al. (2001), Glancy et al. (1986), Marsh (1992), and Youniss et al. (1999), who explained that involvement in extracurricular and co-curricular activities increases educational attainment and job opportunities.

Result Three. Different program alumni value different parts of the three circles of agriculture education: classroom, SAE, and FFA.

When asked to evaluate each of the three circles of agriculture education based on their relevance and value to survey respondents' careers, the skills learned through leadership development were the most valued with 91% of respondents either agreeing or strongly agreeing with the statement, "The skills learned by participation in leadership

development events are valuable to my career." Further exploration showed that general leadership skills and communication skills were the most valued by respondents, aligning with the research of Lavey and Hine (2013), Myers (2005), Rosenberg et al. (2012), and Rouse (2012), who stated that these skills are incredibly important to teach students to help them be successful later in life.

The skills learned through SAE participation were next with 79% of respondents either agreeing or strongly agreeing with the statement, "The skills learned in my SAE/SOEP project are valuable to my career." The qualitative data showed that the business fundamentals learned through SAE projects were the most valuable piece, supported by the work of Bailey (1993), Lewis (1980), Montaye (2006), and Railsback and Hite (2008), who showed that teaching adolescents entrepreneurship and business skills increases their likelihood for success later in life.

Lastly, the statement, "The curriculum I learned in agriculture education courses was relevant to preparing me for my career" resulted in 65% of respondents agreeing and strongly agreeing. Most of the participants who strongly agreed with this statement were involved in the agriculture industry or related industries such as construction and spoke of specific courses and curriculum. Most of the participants who agreed are involved in other industries and spoke of presentation skills, responsibility, and work ethic that were taught in the courses.

Summary

This chapter discussed the findings of the study, including a description of the participants, discussion of the findings—(a) increased earnings potential, (b) leadership skills, (c) communication skills, (d) business fundamentals, (e) employability traits, (f)

personality traits, and (g) vocation-specific skills—and the three results that emerged from the findings and the literature review—(a) agriculture education increases the earnings potential of most program alumni, (b) participation in agriculture education positively influences the careers of most program alumni regardless of the industry sectors they work in, and (c) different program alumni value different parts of the three circles of agriculture education: classroom, SAE, and FFA. The findings and results inform the conclusions and recommendations offered in the final chapter.

Chapter 5: Conclusions and Recommendations

Introduction

The purpose of this study was to examine how agriculture education programs impact participants' lives over the long term. This purpose was met through an extensive literature review and development of three research questions, which were followed by simultaneously interviewing program alumni and conducting an online survey, and then performing data analysis. Seven findings, or themes, emerged from a thorough analysis of both the quantitative and qualitative data: (a) increased earnings potential, (b) leadership skills, (c) communication skills, (d) business fundamentals, (e) employability traits, (f) personality traits, and (g) vocation-specific skills. The results that emerged from these findings and the literature review indicated that: (a) agriculture education increases the earnings potential of most program alumni, (b) participation in agriculture education positively influences the careers of most program alumni regardless of the industry sectors they work in, and (c) different program alumni value different parts of the three circles of agriculture education: classroom, SAE, and FFA. The conclusions in the next section answer the research questions originally posed from the data and are followed by recommendations and ideas for future research.

Conclusions

Three conclusions resulted in response to the three research questions posed at the beginning of the study. First, participation in agriculture education influenced the careers of program alumni. Second, participation in agriculture education resulted in a higher

earnings potential of program alumni. Third, participants valued different aspects of their agriculture education experiences.

Question One: To what extent has participation in agriculture education programs influenced the career choice and progression of program alumni?

The influence of agriculture education programs on the career choice and progression of program alumni varied from industry to industry and participant to participant. Sixty-four percent of survey participants strongly agreed with the statement, "Participation in agriculture education influenced my career" and 14% agreed, indicating that agriculture education has some influence on the careers of program alumni. Additionally, 61% strongly agreed and 21% agreed with the statement, "Participation in agriculture education provided me with more opportunities for my career." Thus, agriculture education influences the careers and career progression of most program alumni.

Question Two: How do the salaries of those who participated in agriculture education compare to those who did not participate in agriculture education 10-20 years post-graduation?

Participation in agriculture education increased the earnings potential of program alumni overall and in all industry sectors except business and finance and arts and entertainment. Overall, the mean salary of program alumni is 15% higher than the general population. In the agriculture industry, the mean salary of program alumni is 63% higher than that of the general population. Additionally, salary by education attainment is higher for agriculture education program alumni.

Question 3: Which agriculture education experiences did program participants perceive as valuable to their careers?

The leadership development component of agriculture education was valued the most, followed by the SAE component, and lastly, the classroom component. However, program alumni positively ranked the skills learned in all three circles of agriculture education, indicating that all three circles are valuable components of agriculture education.

Recommendations

The results of this research study led to four recommendations, which are broken down by audience: departments of education and policymakers, schools and school districts, parents and students, and agriculture educators.

For Departments of Education and Policymakers

The first set of recommendations is for departments of education and policymakers. Given the positive results of the study and the indication that agriculture education positively impacts the careers of program alumni and increases earnings potential, it is recommended the agriculture education model be fully funded. Departments of education and policy makers should commission studies to continue to explore the efficacy of both agriculture education and Career Technical Education. Additionally, a similar model for all CTE industry sectors should be developed and tested.

For Schools and School Districts

It is recommended that schools and school districts support all three components of agriculture education in an equal manner. Current practice has the classroom portion

of the agriculture education model receiving much more support than the other two portions. Leadership development through FFA participation and SAE projects proved to be more valuable in influencing career options and progression of program alumni.

For Parents and Students

Additionally, it is recommended that students and parents take advantage of the available agriculture education programs by enrolling and participating to the fullest extent. Developing a quality SAE program and participating in leadership development as well as in the classroom will provide students with the best chance at having a successful future.

For Agriculture Educators

Lastly, it is recommended that agriculture educators continue to provide a quality education to students. They should implement the three components of agriculture education in as equal a manner as possible. They should continue to develop relationships with students and serve as a positive role model. They should also continue to adapt to the ever changing educational world, as well as the communities they teach in to provide relevant and rigorous instruction.

Potential Future Research

A number of areas of future research emerged from this study:

1. Exploration of the agriculture education programs nationwide with a comparison between compulsory and voluntary FFA involvement
2. Exploration of the efficacy of other CTSO and CTE organizations

3. Examination of the effectiveness of specific leadership development opportunities
4. Examination of the effectiveness of specific types of SAE programs: placement or entrepreneurship
5. Longitudinal case study that follows agriculture education students from freshmen year of high school, through college, career attainment, and progression for a thorough examination of the specific experiences and impact of agriculture education.

Summary

The agriculture education model lives up to its motto of preparing students for premier leadership, personal growth, and career success. By exploring the long-term impacts of agriculture education on program alumni, this study found that participation in agriculture education continues to have a positive impact on program alumni 10-20 years post-graduation across all levels of educational attainment and most career fields. The study indicates area of future research to expand the results across the nation and all career technical education industry areas. Additionally, a deep dive into the individual components of agriculture education is recommended to see what specific practices have the biggest impacts. Lastly, a longitudinal study is recommended to explore how agriculture education impacts alumni in different stages of life.

List of References

Allen, J., Porter, M., Marsh, P., McFarland, F., & McElhaney, K. (2005). Two faces of adolescents' success with peers; adolescent popularity, social adaptation, and deviant behavior. *Childhood Development, 76,* 747-760.

Anderson, S. (2008). Math infusion in agricultural education and career and technical education in rural schools. *The Rural Educator, 30*(1), 1-4.

Ardelt, M., & Day, L. (2002). Parents, siblings, and peers: Close social relationships and adolescent deviance. *Journal of Early Adolescence, 22,* 310-349.

Argawal, A., Verweij, K., Gillespie, N., Heath, A., Lessov-Schlaggar, C., Martin, N., … & Lynskey, M. (2012). The genetics of addiction – A translational perspective. *Translational Psychiatry, 2,* 140-154.

Arnett, J. (2000a). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55,* 469-480.

Arnett, J. (2000b). High hopes in a grim world: Emerging adults' views of their futures and "generation X." *Youth and Society, 31,* 267-286.

Arnett, J. (2004). *Emerging adulthood: The winding road from the late teens through the twenties.* New York: Oxford University Press, Inc.

Arnett, J. (2005). The developmental context of substance use in emerging adulthood. *Journal of Drug Issues, 35,* 235-253.

Arnett, J. (2007). Emerging adulthood: What is it, and what is it good for. *Child Development Perspectives, 1*(2), 68-73.

Arthur, M., Khapova, S., & Wilderom, C. (2005). Career success in a boundaryless career world. *Journal of Organizational Behavior, 26,* 177-202.

Bachman, J., O'Malley, P., Schulenberg, J., Johnston, L., Bryant, A., & Merline, A. (2002). *The decline of substance use in young adulthood: Changes in social activities, roles and beliefs.* Mahwah, NJ: Erlbaum.

Bae, S., Gray, K., & Yeager, G. (2007). A retrospective cohort comparison of career and technical education participants and non-participants on a state-mandated proficiency test. *Career and Technical Education Research, 31*(1), 9-22.

Baer, R., Flexer, R., Beck, S., Amstutz, N., Hoffman, L., Brothers, J., … & Zechman, C. (2003). A collaborative follow-up study on transition service utilization and outcomes. *Career Development for Exceptional Individuals, 26,* 7-25.

Bailey, F. (1988). *Humbuggery and manipulation: The art of leadership*. Ithica, NY: Cornell University Press.

Barber, B., Eccles, J., & Stone, M. (2001). Whatever happened to the jock, the brain and the princess?: Young adult pathways linked to adolescent activity involvement and social identity. *Journal of Adolescent Research, 16,* 429-455.

Barrick, R. (1989). Agriculture education: Building upon our roots. *Journal of Agricultural Education, 30*(4), 24-29.

Barrick, R., Hughes, M., & Baker, M. (1991). *A review and synthesis of research on supervised experience in agriculture*. *Summary of research 65.* Department of Agricultural Education, The Ohio State University.

Barto, H., Lambert, S., & Brott, P. (2015). Career adaptability, resiliency and perceived obstacles to career development of adolescent mothers. *The Professional Counselor, 5*(1), 53-66.

Benson, P., Leffert, N., Scales, P., & Blyth, D. (1998). Beyond the village rhetoric: creating healthy communities for children and adolescents. *Applied Developmental Science, 2,* 138-159.

Birdthistle, N., Hynes, B., & Fleming, P. (2007). Enterprise education programmes in secondary schools in Ireland – A multi-stakeholder perspective. *Education + Training, 49,* 265-276.

Bishop, J., & Mane, F. (2004). The impacts of career-technical education on high school labor market success. *Economics of Education Review, 23,* 381-402.

Bozick, R., & Dalton, B. (2012). Balancing career and technical education with academic coursework: The consequences for mathematics achievement in high school. *Educational Evaluation and Policy Analysis, 35*(2), 123-138.

Branje, S., Van Lisehous, C., Van Aken, M., & Haselager, G.(2004). Perceived support in sibling relationships and adolescent adjustment. *Journal of Child Psychology and Psychiatry, 45,* 1385-1396.

Brown, D. (1990). *Career choice and development*. San Francisco: Jossey-Bass.

Buchanan, C., Eccles, J., Flanagan, C., Midgley, C., Feldlaufer, H., & Harold, R. (1990). Parents' and teachers' beliefs about adolescents: Effects of sex and experience. *Journal of Youth and Adolescence, 19,* 363-394.

Buhrmester, D., & Furman, W. (1990). Perceptions of sibling relationships during middle childhood and adolescence. *Child Development, 61,* 1387-1396.

Calgren, T. (2013). Communication, critical thinking, problem solving: A suggested course for all high school students in the 21st century. *Interchange, 44,* 63-81.

California Department of Education. (2014a). *Agriculture education*. Retrieved from http://www.cde.ca.gov/ci/ct/ae/

California Department of Education. (2014b). *Local Control Funding Formula*. Retrieved from www.cde.ca.gov/fg/aa/lc

California FFA. (2015). *California agricultural education: Statistics*. http://www.calaged.org/about/facts

Camp, B. (2001). Purdue university study reveals "good news" on career technical education student organizations. *Techniques, 76*(2), 60. Retrieved from ProQuest.

Cassel, R., & Standifer, T. (2000). Comparing the leadership development between high school JROTC cadets and beginning college school administrator students. *Education, 120,* 422-437.

Cheung, C., & Au, E. (2010). Running a small business by students in a secondary school: Its impact on learning about entrepreneurship. *Journal of Entrepreneurship Education, 13,* 45-63.

Chisholm, L., & Hurrelmann, K. (1995). Adolescence in modern Europe: Pluralized transition patterns and their implications for personal and social risks. *Journal of Adolescence, 18,* 129-158.

Co-curricular. (2014). *The glossary of education reform*. Great Schools Partnership, 2014. Retrieved from http://www.edglossary.org

Coe, B. (1964). Vocational education in the high school. *Theory into Practice, 3,* 171-174. Retrieved from JSTOR.

Collins, A. (2003). More than a myth: The developmental significance of romantic relationships during adolescence. *Journal of Research on Adolescence, 13*(1), 1-24.

Conger, R., Conger, K., Elder, G., Lorenz, F., Simons, R., & Whitbeck, L. (1992). A family process model of economic hardship and adjustment of early adolescent boys. *Child Development, 63,* 526-541.

Conger, R., Conger, K., Elder, G., Lorenz, F., Simons, R., & Whitbeck, L. (1993). Family economic stress and adjustment of early adolescent girls. *Developmental Psychology, 29,* 206-219.

Cresswell, J. (2011). *Educational research: Planning, conducting and evaluating quantitative and qualitative research* (4th ed.). Delhi, India: PHI Learning Private Limited.

Creswell, J., & Clark, P. (2011). *Designing and conducting mixed methods research* (2nd ed.). Thousand Oaks, CA: SAGE Publications.

Croom, B. (2008). The development of the integrated three-component model of agricultural education. *Journal of Agricultural Education, 49*(1), 110-120.

Dare, D. (2006). The role of career and technical education in facilitating student transitions to postsecondary education. *New Directions for Community Colleges, 135*, 73-80.

Dhuey, E., & Lipscomb, S. (2008). What makes a leader? Relative age and high school leadership. *Economics of Education Review, 27*(2), 173-183.

Dobosz, R., & Beaty, L. (1999). The relationship between athletic preparation and high school students' leadership ability. *Adolescence, 34*, 215-220.

Dormody, T., & Seevers B. (1994). Participation of FFA members in leadership development activities: A tri-state study. *Journal of Agriculture Education, 35*(4), 42-48.

Duarte, E., Soares, M., Fraga, S., Rafeal, M., Lima, M., Paredes, I., … & Djalo, A. (2012). Career adapt-abilities scale – Portugal form: Psychometric properties and relationships to employment status. *Journal of Vocational Behavior, 80*, 725-729.

Dubas, J., & Gerris, J. (2002). Longitudinal changes in the time parents spend in activities with their adolescent children as a function of child age, pubertal status, and gender. *Journal of Family Psychology, 16*, 415-427.

East, P., & Jacobson, L. (2001). The younger siblings of teenage mothers: A follow-up of their pregnancy risk. *Developmental Psychology, 37*, 254-264.

Eby, L., Butts, M., & Lockwood, A. (2003). Predictors of success in the era of the boundaryless career. *Journal of Organizational Behavior, 24*, 689-708.

Eccles, J., Barber, B., Stone, M., & Hunt, J. (2003). Extracurricular activities and adolescent development. *Journal of Social Issues, 59*, 865-889.

Eisenberg, M., Neumark-Sztainer, D., & Perry, C. (2003). Peer harassment, school connectedness and school success. *Journal of School Health, 73*, 311-316.

Erikson, E. (1950). *Childhood and society.* New York: Norton & Co.

Farmer, T., Estell, D., Bishop, J., O'Neal, K., & Cairns, B. (2003). Rejected bullies or popular leaders? The social relations of aggressive subtypes of rural African American early adolescents. *Developmental Psychology, 9,* 992-1004.

Flanagan, C., Gallay, L., Gill, S., Gallay, E., & Nti, N. (2005). What does democracy mean? Correlates of adolescents' views. *Journal of Adolescent Research, 20,* 193-218.

Flaxman, E., Guerrero, A., & Gretchen, D. (1997). *Career development effects of career magnets versus comprehensive schools.* Berkeley: National Center for Research in Vocational Education, University of California, Berkeley.

Fouad, N., & Guillen, A. (2006). Outcome expectations: Looking to the past and potential future. *Journal of Career Assessment, 14,* 130-142.

Funk, R. (2002). Developing leaders through high school junior ROTC: Integrating theory with practice. *Journal of Leadership & Organizational Studies, 8*(4), 43-53.

Furman, W., & Buhrmester, D. (1985). Children's perceptions of the personal relationships in their social networks. *Developmental Psychology, 21,* 1016-1024.

Furman, W., & Buhrmester, D. (1992). Age and sex in perceptions of networks of personal relationships. *Child Development, 63*(1), 103-115.

Furman, W., & Winkles, J. (2011). Transformations in heterosexual romantic relationships across the transition to adulthood. *Relationship Pathways: From Adolescence to Young Adulthood,* 191.

Gallos, J. (2008). *Business leadership: A Jossey-Bass reader* (2nd ed.). San Francisco: Wiley & Sons, Inc.

Giannatntonio, C., & Hurley-Hanson, A. (2006). Applying image norms across Super's career development stages. *Career Development Quarterly, 54,* 318-330.

Glancy, M., Willits, F., & Farrell, P. (1986). Adolescent activities and adult success and happiness: Twenty-four years later. *Sociology and Social Research, 70,* 242-250.

Gottfredson, L. (1981). Circumscription and compromise: A developmental theory of occupational aspirations. *Journal of Counseling Psychology, 28,* 545-579.

Graham, J. (1939). Business education in the small high school. *The High School Journal, 22,* 244-246.

Grant, K., Compas, B., Sruhlmacher, A., Thurm, A., McMahon, S., & Halpert, J. (2003). Stressors and child and adolescent psychopathology: Moving from markers to mechanisms of risk. *Psychological Bulletin, 129,* 447-466.

Gray, D. (2014). *Doing research in the real world.* Los Angeles: SAGE publications, Inc.

Gray, K. (2004). Is high school career and technical education obsolete? *Phi Delta Kappan, 86*(2), 128-135.

Gray, K., Huang, N., & Jie, L. (1993). The gender gap in yearly earnings: Is it lack of education or occupational segregation. *Journal of Industrial Teacher Education, 18*(3), 1-14.

Greene, J. (2007). *Mixed methods in social inquiry.* San Francisco: Jossey-Bass.

Guan, Y., Deng, H., Sun, J., Wang, Y., Cai, Z., Ye, L., … & Li, Y. (2013). Career adaptability, job search self-efficacy and outcomes: A three-wave investigation among Chinese university graduates. *Journal of Vocational Behavior, 83,* 561-570.

Guarnieri, S., Smorti, M., & Tani, F. (2014). Attachment relationships and life satisfaction during emerging adulthood. *Social Indicators Research, 121*, 833-847.

Gutman, L., & Eccles, J. (1999). Financial strain, parenting behaviors, and adolescent achievement: Testing model equivalence between African American and European American single- and two-parent families. *Child Development, 70,* 1464-1470.

Hamtiaux, A., Houssemand, C., & Vrignaud, P. (2013). Individual and career adaptability: Comparing models and measures. *Journal of Vocational Behavior, 83,* 130-141.

Hart, D., & Atkins, R. (2002). Civic competence in urban youth. *Applied Developmental Science, 6,* 227-236.

Hart, D., & Fegley, S. (1995). Prosocial behavior and caring in adolescence: Relations to self-understanding and social judgment. *Child Development, 66,* 1346-1359.

Hartup, W. (1996). The company the keep: Friendships and their developmental significance. *Child Development, 67,* 1-13.

Harvey, M. (2002). Comparison of postsecondary transitional outcomes between students with and without disabilities by secondary vocational education participation: Finding from the national education study. *Career Development and Transition for Exceptional Individuals, 25*, 99-122.

Herr, E. (1997). Super's life-span, life-space approach and its outlook for refinement. *The Career Development Quarterly, 45*, 238-246.

Hershey, A., Silverberg, M., Owens, T., & Hulsey, L. (1998). *Focus for the future: The final report of the National Tech-Prep Evaluation.* Princeton, NJ. Mathematics Policy Research. Retrieved from ERIC database. (423395)

Hirschi, A. (2009). Career adaptability development in adolescence: multiple predictors and effect on sense of power and life satisfaction. *Journal of Vocational Behavior, 74*(2), 145-155.

Hirschy, A., Bremer, C., & Castellano, M. (2011). Career and technical education (CTE) student success in community colleges: A conceptual model. *Community College Review, 39*, 296-318.

Hogan, D., & Astone, N. (1986). The transition to adulthood. *Annual Review of Sociology, 12*, 109-130.

Holland, A., & Andre, T. (1999). Student characteristics and choice of high school remembrance role. *Adolescence, 34*, 315-338.

Johanson, J. (2010). Cultivating critical thinking: an interview with Stephen Brookfield. *Journal of Developmental Education, 33*(3), 26-30.

Johnson, M., Beebe, T., Mortimer, J., & Snyder, M. (1998). Volunteerism in adolescence: A process perspective. *Journal of Research Adolescence, 8*, 309-332.

Jonassen, D. (2000). Toward a design theory of problem solving. *Educational Technology Research and Development, 48*, 63-85.

Jonassen, D. (2002). Case-based reasoning and instructional design: using stories to support problem solving. *Educational Technology Research and Development, 50*, 65-77.

Jonassen, D. (2012). Designing for decision making. *Educational Technology Research and Development, 60*, 341-359.

Kelley, S., & Price, A. (2009). Vocational education: A clean slate for disengaged students?. *Social Science Research, 38*, 810-825.

Koen, J., Klehe, U., & Van Vianen, A. (2012). Training career adaptability to facilitate a successful school-to-work transition. *Journal of Vocational Behavior, 81*, 395-408.

Kosine, N., & Lewis, M. (2008). Growth and exploration: Career development theory and programs of study. *Career and Technical Education Research, 33*, 227-243.

Kotamraju, P. (2011). Measuring the return on investment for CTE. *Techniques.*

Kress, C. (2006). Youth leadership and youth development: Connections and questions. *New Directions for Youth Development, 2006*(109), 45-56.

Kuhn, P., & Weinberger, C. (2005). Leadership skills & wages. *Journal of Labor Economics, 23*, 395-436.

Kuratko, D. (2005). The emergence of entrepreneurship education: Development, trends and challenges. *Entrepreneurship Theory and Practice, 29*, 577-598.

LaFontana, K., & Cillessen, A. (2002). Children's perceptions of popular and unpopular peers: A multimethod assessment. *Developmental Psychology, 38,* 635-647.

Larson, R., Richards, M., Moneta, G., Holmbeck, G., & Duckett, E. (1996). Changes in adolescents' daily interactions with their families from ages 10-18: Disengagement and transformation. *Developmental Psychology, 32,* 744-754.

Laursen, B., & Collins, W. (1994). Interpersonal conflict during adolescence. *Psychological Bulletin, 115*, 197-209.

Lavey, S., & Hine, G. (2013). Catholic school principals: Promoting student leadership. *Catholic Education: A Journal of Inquiry and Practice, 17*(1), 41-66.

Lempers, J., & Clark-Lempers, D. (1992). Young, middle, and late adolescents' comparisons of the functional importance of five significant relationships. *Journal of Youth and Adolescence, 21,* 53-96.

Lent, R., Brown, S., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior, 45,* 79-122.

Lepoutre, J., Van den Berghe, W., Tilleuil, O., & Crijns, H. (2010). A new approach to testing the effects of entrepreneurship education among secondary school pupils. *Vlerick Leuven Gent Management School Working Paper Series*, *2010*(1).

Levin, H. (2015). The importance of adaptability for the 21st century. *Society, 52*(2), 136-141.

Lewis, E. (1980). *Public entrepreneurship: Toward a theory of bureaucratic political power.* Bloomington: Indiana University Press.

Lewis, L., Rayfield, J., & Moore, L. (2012). Supervised agriculture experience: An examination of student knowledge and participation. *Journal of Agriculture Education, 53*(4), 70-84.

Lewis, M. (2008). Effectiveness of previous initiatives similar to programs of study: Tech prep, career pathways, and youth apprenticeships. *Career & Technical Education Research, 33*(3), 165-188.

Maggiori, C., Johnston, C., Krings, F., Massoudi, K., & Rossier, J. (2013). The role of career adaptability and work conditions on general and professional well-being. *Journal of Vocational Behavior, 83*, 437-449.

Mahatmya, D., & Lohman, B. (2012). Predictors and pathways to civic involvement in emerging adulthood: Neighborhood, family and social influences. *Journal of Youth and Adolescence, 41,* 1168-1183.

Mahoney, J. (2000). School extracurricular activity participation as a moderator in the development of antisocial patterns. *Child Development, 71*(2), 502-516.

Mahoney, J., & Cairns, R. (1997). Do extracurricular activities protect against early school dropout. *Developmental Psychology, 33*(2), 241-253.

Marques, C., Ferreira, J., Gomes, D., & Rodrigues, R. (2012). Entrepreneurship education: How psychological, demographic and behavioural factors predict the entrepreneurial intention. *Education + Training, 54*, 657-672.

Marsh, H. (1992). Extracurricular activities: Beneficial extension of the traditional curriculum or subversion of academic goals? *Journal of Educational Psychology, 84*, 553-562.

Marsh, H., & Kleitman, S. (2002). Extracurricular school activities: The good, the bad, and the non-linear. *Harvard Educational Review, 72*, 464-514.

McLoyd, V. (1998). Socioeconomic disadvantage and child development. *American Psychology, 53,* 185-204.

McNally, K., & Harvey, M. (2001). Career and technical student organizations: A perfect path to self-determination and successful transition. *Preventing School Failure, 45*(3), 114-118.

Meer, J. (2007). Evidence on the returns to secondary vocational education. *Economics of Education Review, 26*, 559-573.

Merriam, S. (2002). *Qualitative research in practice*. San Francisco: Jossey-Bass Publications.

Messersmith, E., Garrett, J., Davis-Kean, P., Malanchuk, O., & Eccles, J. (2008). Career development from adolescence through emerging adulthood: Insights from information technology occupations. *Journal of Adolescent Research, 23*(2), 206-227.

Miller, R. (1976). *Leader/agents guide: Leadership life skills.* Stillwater: Oklahoma State University.

Mitra, D. (2005). Adults advising youth: Leading while getting out of the way. *Educational Administration Quarterly, 41*, 520-553.

Montanye, J. (2006). Entrepreneurship. *The Independent Review, 10*, 547-569.

Mozhgan, A., Parivash, J., Nadergholi, G., & Jowkar, B. (2011). Student leadership competencies development. *Procedia- Social and Behavioral Sciences, 15*, 1616-1620.

Myers, T. (2005). Developing a culture of student leadership. *Teacher, 3*(1), 26-29.

NAAE. (2012). *Supervised agricultural experience fact sheet, history of SAE*. Retrieved from http://www.naae.ca.uky.edu:8080/clearspace_community/^/SAE%20History.pdf

NAAE. (2015). *What is agriculture education*. Retrieved from http://www.naae.org/whatisaged/

NCC-CTSO. (2015). *Career and technical student organizations*. Retrieved from www.ctsos.org

Newell, A., & Simon, H. (1972). *Human problem solving.* Englewood Cliffs, NJ: Prentice-Hall.

Nidever, S. (2014a). FFA funding back in state budget. *Hanford Sentinel.*

Nidever, S. (2014b). FFA funding sliced from state budget proposal. *Hanford Sentinel*.

Ohme, M., & Zacher, H. (2015). Job performance ratings: The relative importance of mental ability, conscientiousness, and career adaptability. *Journal of Vocational Behavior 87,* 161-170.

Oosterbeek, H., van Praag, M., & Ijsselstein, A. (2010). The impact of entrepreneurship education on entrepreneurship skills and motivation. *European Economic Review, 54*, 442-452.

Paco, A., Ferreira, J., Raposo, M., Rodrigues, R., & Dinis A. (2011). Behaviours and entrepreneurial intention: Empirical findings about secondary students. *Journal of International Entrepreneurship, 9*(1), 20-38.

Parr, D., & Trexler, C. (2010). Students' experiential learning and use of student farms in sustainable agriculture education. *Natural Sciences Education, 40*(1), 172-180.

Patton, W., & McMahon, M. (2006). *Career development and systems theory: A new relationship* (2nd ed.). Belmont, CA: Thomson Brooks.

Peterman, N., & Kennedy, J. (2003). Enterprise education: Influencing students' perceptions of entrepreneurship. *Entrepreneurship Theory and Practice, 28*(2), 129-144.

Philips, D., & Burbules, N. (2000). *Postpositivism and educational research.* Boulder, CO: Rowman and Littlefield.

Plank, S., DeLuca, S., & Estacion, A. (2008). High school dropout rate and the role of career and technical education: A survival analysis of surviving high school. *Sociology of Education, 81*, 345-370.

Popper, K. (1999). *All life is problem solving.* London, UK: Routledge.

Porfeli, E., & Savickas, M. (2012). Career adapt-abilities scale-USA form: Psychometric properties and relation to vocational identity. *Journal of Vocational Behavior, 80*, 748-753.

Portes, A. (2000). The two meanings of social capital. *Sociological Forum, 15*, 1-12.

Price, R., & Cioci, M. (1993). Webs of influence: School and community programs that enhance adolescent health and education. *Teachers College Record, 94*, 487-521.

Putnam, R. (1995). Bowling alone: America's declining social capital. *Journal of Democracy, 6*(1), 65-78.

Rabren, K., Carpenter, J., Dunn, C., & Carney, J. (2014). Actions against poverty: The impact of career technical education. *Career Development and Transition for Exceptional Individuals, 37*(1), 29-39.

Railsback, B., & Hite, N. (2008). The value of business education: Perceptions of high school guidance counselors, principals, and boards of education. *The Delta Pi Epsilon Journal, 1*(3), 150-163.

Raybould, J., & Sheedy, V. (2005). Are graduates equipped with the right skills in the employability stakes? *Industrial and Commercial Training, 37*, 259-263.

Reever, K. (2011) *Transformational leadership and personal development: The impact of the youth citizenship seminar on former participants* (Doctoral dissertation). Pepperdine University. ProQuest Dissertations and Theses. (3449398)

Retallick, M. (2010). Implementation of supervised agricultural experience programs: The agriculture teachers' perspective. *Journal of Agricultural Education, 51*(4), 59-70.

Rice, A. (2014). Incorporation of chance into career development theory and research. *Journal of Career Development, 41*, 445-463.

Rodkin, P., Farmer, T., Pearl, R., & Van Acker, R. (2000). Heterogeneity of popular boys: Antisocial and prosocial configurations. *Developmental Psychology, 36,* 14-24.

Rohrbach, L., Sussman, S., Dent, C., & Sun, P. (2005). Tobacco, alcohol, and other drug use among high-risk young people: A five-year longitudinal study from adolescence to emerging adulthood. *Journal of Drug Issues, 35,* 333-355.

Rose, A. (2002). Co-rumination in the friendships of girls and boys. *Child Development, 73,* 1830-1842 .

Rose, A., Swenson, L., & Waller, E. (2004). Overt and relational aggression and perceived popularity: Developmental differences in concurrent and prospective relations. *Developmental Psychology, 40,* 378-387.

Rosenburg, S., Heimler, R., & Morote, E. (2012). Basic employability skills: A triangular design approach. *Education and Training, 54*(1), 7-20.

Rouse, K. (2012). The impact of high school leadership on subsequent educational attainment. *Social Science Quarterly, 93*(1), 110-129.

Saldaña, J. (2013). *The coding manual for qualitative researchers* (2nd ed.). Los Angeles: SAGE Publications

Sampson, J., Hou, P., Kronholz, J., Dozier, C., McClain, M., Buzzetta, M., … & Kennelly, E. (2014). A content analysis of career development theory, research and practice – 2013. *The Career Development Quarterly, 62,* 290-326.

Savickas, M. (1993). Career counseling in the postmodern era. *Journal of Cognitive Psychotherapy: An International Quarterly, 7,* 205-215.

Savickas, M. (1997). Career adaptability: An integrative construct for life-span, life-space theory. *The Career Development Quarterly, 45*, 247-259.

Savickas, M. (1999). The transition from school to work: A developmental perspective. *The Career Development Quarterly, 47*, 326-336.

Savickas, M. (2011). New questions for vocational psychology: Premises, paradigms, and practices. *Journal of Career Assessment, 19*, 251-258.

Savickas, M., & Porfeli, E. (2012). Career adapt-abilities scale: Construction, reliability, and measurement equivalence across 13 counties. *Journal of Vocational Behavior, 80*, 661-673.

Savickas, M., Nota, L., Rossier, J., Dauwalder, J., Duarte, M., Guichard, J., … & van Vianen, A. (2009). Life designing: A paradigm for career construction in the 21st century. *Journal of Vocational Behavior, 75*, 239-250.

Slomkowski, C., Rende, R., Conger, K., Simons, R., & Conger, R. (2001). Sisters, brothers, and delinquency: Social influence during early and middle adolescence. *Child Development, 72*, 271-283.

Smetana, J., Campione-Barr, N., & Metzger, A. (2006). Adolescent development in interpersonal and societal contexts. *Annual Review of Psychology, 57*(1), 255-284.

Smetana, J., Metzger, A., & Campione-Barr, N. (2004). African American adolescents' relationships with parents: Developmental transitions and longitudinal patterns. *Child Development, 75*, 932-947.

Smith, P., Ananiaudou, K., & Cowie, H. (2003). Interventions to reduce school bullying. *Canadian Journal of Psychiatry, 48*, 591-599.

Starratt, R. (2007). Leading a community of learners. *Educational Management Administration & Leadership, 35*(2), 165-183.

Stewart, B., & Birkenholz, R. (1991). Outcomes of changing supervised agricultural experience programs. *Journal of Agricultural Education, 32*(3), 35-41.

Stocker, C., Burwell, R., & Briggs, M. (2002). Sibling conflict in middle childhood predicts children's adjustment in early adolescence. *Journal of Family Psychology, 16*, 50-57.

Stone, E. (2010, August 28). Leadership and college admissions. *Examiner.com*. Retrieved from http://www.examiner.com/college-admissions-in-san-francisco/leadership-and-college-admissions

Strohschein, M. (2012). *Academic and career readiness attainment in career technical education* (Doctoral dissertation). Walden University. ProQuest Dissertations and Theses. (1039162775)

Sullivan, S., & Baruch, Y. (2009). Advances in career theory and research: A critical review and agenda for future exploration. *Journal of Management, 35*, 1542-1571.

Sullivan, S., Forret, M., Mainiero, L., & Terjesen, S. (2007). What motivates entrepreneurs? An exploratory study of the kaleidoscope career model and entrepreneurship. *Journal of Applied Management and Entrepreneurship, 12*(4), 4-18.

Super, D. (1955). The dimensions and measurement of vocational maturity. *Teachers College Record, 57*, 151-163.

Super, D. (1957). *The psychology of careers.* New York: Harper & Row.

Super, D. (1981). A developmental theory: Implementing a self-concept. *Career Development in the 1980s: Theory and Practice*. Springfield, IL: Thomas.

Super, D. (1984). Career and life development. In D. Brown & L. Brooks (Eds.), *Career choice and development: Applying contemporary theories to practice.* San Francisco: Jossey-Bass.

Super, D. (1990). A life-span, life-space approach to career development. In D. Brown & L. Brooks (Eds.), *Career choice and development: Applying contemporary theories to practice*. San Francisco: Jossey-Bass.

Super, D., Savickas, M., & Super, C. (1996). The life-span, life-space approach to careers. In D. Brown & L. Brooks (Eds.), *Career choice and development: Applying contemporary theories to practice*. San Francisco: Jossey-Bass.

Sussman, S. (2013). A lifespan developmental-stage approach to tobacco and other drug abuse prevention. *Addiction.*

Sussman, S., & Arnett, J. (2014). Emerging adulthood: Developmental period facilitative of the addictions. *Research in Emerging Adulthood and Risky Behavior, 37*(2), 147-155.

Sussman, S., Leventhal, A., Bluthentha, R., Freimuth, M., Forster, M., & Ames, S. (2011). A framework for the specificity of addictions. *International Journal of Environmental Research and Public Health, 8,* 3399-3415.

Swanson, J. (1992). Vocational Behavior, 1989-1991: Life-span career development and reciprocal interaction of work and nonwork. *Journal of Vocational Behavior, 41,* 101-161.

Talbert, B., & Balschweid, M. (2004). Engaging students in the agricultural education model: Factors affecting student participation in the National FFA Organization. *Journal of Agricultural Education, 45*(1), 29-41.

Talbert, B., Vaughn, R., Croom, D., & Lee, J. (2007). *Foundations of agricultural education* (2nd Ed.). Danville, IL: Professional Educators Publications, Inc.

Taylor, R., & Roberts, D. (1995). Kinship support and maternal and adolescent well-being in economically disadvantaged African-American families. *Child Development, 66,* 1585-1597.

Tillman, C., & Tillman, W. (2008). What's CTE gotta do with it: Are CTE graduates employed in the fields in which they received their training. *Journal of Organizational Culture, Communication and Conflict, 12*(1), 25-41.

Tomsho, R. (2009, August 19). Adding personality to the college admission mix. *Wall Street Journal*. Retrieved from http://online.wsj.com/article/SB10001424052970203612504574342732853413584.html

Tran, S. (2013). *Local Control Funding Formula: Is there a new rulebook?.* http://edsource.org/2013/local-control-funding-formula-is-there-a-new-rulebook/36714#.VIICa9LF-So

Van Merrienboer, J. (2013). Perspectives on problem solving and instruction. *Computers and Education, 64,* 153-160.

Vogel-Scibilia, S., McNulty, K., Baxter, B., Miller, S., Dine, M., & Frese, F. (2009). The recovery process utilizing Erikson's stages of human development. *Community Mental Health Journal, 45*, 405-414.

Wagner, T. (2006). Rigor on trial. *Education Week, 25*(18), 28-29.

Whiston, S., & Keller, B. (2004). The influences of the family of origin on career development: A review and analysis. *The Counseling Psychologist, 32*, 493-568.

Wingenbach, G., & Kahler, A. (1997). Self-perceived youth leadership and life skills of Iowa FFA members. *Journal of Agricultural Education, 38*(3), 18-27.

Yates, M., & Youniss, J. (1996). Community service and political-moral identity in adolescents. *Journal of Research on Adolescence, 54,* 248-261.

Youniss, J., & Yates, M. (1999). Youth service and moral-civic identity: A case for everyday morality. *Educational Psychology Review, 14,* 361-376

Youniss, J., McLellan, J., & Yates, M. (1997). What we know about engendering civic identity. *American Behavioral Scientist, 40,* 620-631.

Youniss, J., McLellan, J., & Yates, M. (1999). Religion, community service, and identity in American youth. *Journal of Adolescence, 22,* 243-253

Youniss, J., McLellan, J., Su, Y., & Yates, M. (1999). The role of community service in identity development: normative, unconventional, and deviant orientations. *Journal of Adolescent Research, 14*(2), 248-261.

Zacher, H. (2014). Career adaptability predicts subjective career success above and beyond personality traits and core self-evaluations. *Journal of Vocational Behavior, 84*(1), 21-30.

Zacher, H., & Griffin, B. (2015). Older workers' age as a moderator of the relationship between career adaptability job satisfaction. *Work, Aging and Retirement, 1*(2), 227-236.

Zacher, H., Ambiel, R., & Noronha, A. (2015). Career adaptability and career entrenchment. *Journal of Vocational Behavior, 88,* 164-173.

Appendix A: Interview Questions

Interview Questions

1. Would you say that agriculture education has impacted your career? If so, how?
2. What skills that you learned in agriculture education have been the most valuable in your current occupation?
3. Describe for me your fondest memory in agriculture education.
4. What was your SAE project? What skills did you learn through participation in this project?
5. What leadership activities did you participate in? What skills did you learn through participation in these activities?
6. Which agriculture courses did you take? Which, if any, are applicable to your current career? How?
7. Which of the three circles (SAE, leadership and classroom) was most valuable to your current occupation?
8. What do you wish your agriculture experience had provided for you? Additional skills, opportunities, etc?
9. Would you encourage your children to participate in agriculture education? Why or why not?
10. Is there anything else you'd like to share with me about your agriculture education experience?

Appendix B: Survey Questions

1. How many years were you involved in agriculture education?
    a. 1
    b. 2
    c. 3
    d. 4
2. What is the highest degree you obtained?
    a. Greenhand
    b. Chapter Farmer
    c. State
    d. American
3. Which region was your agriculture education program in?
    a. Central
    b. Central Coast
    c. North Coast
    d. San Joaquin
    e. Southern
    f. Superior

Questions 4-10 utilize this likert scale.

1	2	3	4	5
Strongly Disagree		Neutral		Strongly Agree

4. My participation in agriculture education was overall positive.
5. Participation in agriculture education influenced my career.
6. The skills learned in my SAE project are valuable to my career.
7. The skills learned by participation in leadership development events are valuable in my career.
8. The curriculum I learned in agriculture education courses was relevant to preparing me for my career.
9. Participation in agriculture education provided me with more opportunities for my career.
10. Agriculture education should be available to all students.

Short Response questions:

11. What skills that you learned in agriculture education have been the most valuable in your current occupation?
12. What was your SAE project? What skills did you learn through participation in this project?
13. What leadership activities did you participate in? What skills did you learn through participation in these activities?

14. Which agriculture courses did you take? Which, if any, are applicable to your current career? How?
15. What do you wish your agriculture experience had provided for you? Additional skills, opportunities, etc.?

This set of questions is formatted similar to public databases for comparison to the general population.

16. What is your current occupation?
17. What is your highest level of education?
    a. High School or GED
    b. Associates Degree
    c. Industry Training/Certificate Program
    d. Bachelors Degree
    e. Masters Degree
    f. Doctoral Degree
    g. Other- Please explain
18. What is your annual income?
    a. Less than $10,000
    b. $10,000-$19,000
    c. $20,000-$29,000
    d. $30,000-$39,000
    e. $40,000-$49,000
    f. $50,000-$59,000
    g. $60,000-$69,000
    h. $70,000-$79,000
    i. $80,000-$89,000
    j. $90,000-$99,000
    k. $100,000-$149,000
    l. $150,000 or more
19. What is your gender?
    a. Male
    b. Female
    c. Other
20. What is your ethnicity (select all that apply)?
    a. American Indian or Alaskan Native
    b. Asian
    c. Black or African American
    d. Hispanic
    e. Native Hawaiian or other Pacific Islander
    f. White
    g. Other